

## ***Euryhapsis fuscipropes* sp. n. from China and *Tokyobrillia anderseni* sp.n. from Tanzania, with a review of genera near *Irisobrillia* Oliver (Diptera : Chironomidae)**

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Keywords : Diptera, Chironomidae, systematics, *Brillia* group, *Euryhapsis*, *Tokyobrillia*, *Irisobrillia*, *Pseudobrillia*, China, Tanzania.

The generic diagnosis of *Euryhapsis* Oliver and the description of *E. cilium* Oliver are augmented. *E. fuscipropes* sp.n. is described as male imago and shown to be close to *E. cilium*. The systematic position of the genera related to *Brillia* Kieffer and *Eurycnemus* van der Wulp is discussed. A review and a key to male and female imagines of genera of the *Brillia* group with single gonostyli are given. The generic diagnoses of the genera *Irisobrillia* Oliver, *Tokyobrillia* Kobayashi & Sasa, and *Pseudobrillia* Niitsuma are augmented or emended. The description of the female imago of *T. longicosta* Oliver is augmented. *T. anderseni* sp. n. from Tanzania is described as male and female imago, the description of the male imago of *I. Tamamegaseta* augmented and the female described. The description of the male imago of *P. komorii* Niitsuma is augmented.

***Euryhapsis fuscipropes* n. sp. de Chine et *Tokyobrillia anderseni* n. sp. de Tanzanie, avec une révision des genres proches d'*Irisobrillia* Oliver (Diptera, Chironomidae)**

Mots clés : Diptera, Chironomidae, systématique, groupe *Brillia*, *Euryhapsis*, *Tokyobrillia*, *Irisobrillia*, *Pseudobrillia*, Chine, Tanzanie.

La diagnose générique d'*Euryhapsis* Oliver et la description de *E. cilium* Oliver sont complétées. L'imago mâle de *E. fuscipropes* n.sp. est décrit ; il est proche de *E. cilium*. La position systématique des genres proches de *Brillia* Kieffer et *Eurycnemus* van der Wulp est discutée. Une révision et une clé des imagos mâle et femelle des genres du groupe *Brillia* avec un gonostyle simple sont données. Les diagnoses des genres *Irisobrillia* Oliver, *Tokyobrillia* Kobayashi & Sasa et *Pseudobrillia* Niitsuma sont complétées ou émenées. La description de l'imago femelle de *T. longicosta* Oliver est précisée. Les imagos mâle et femelle de *T. anderseni* n.sp. de Tanzanie sont décrits, la description de l'imago mâle de *I. Tamamegaseta* est complétée et l'imago femelle est décrit. La description de l'imago mâle de *P. komorii* Niitsuma est complétée.

### **1. Introduction**

In recent years a number of new genera have been described within the primitive Orthoclaadiinae ; i.e. *Tokunagayusurika* Sasa (1978), *Euryhapsis* Oliver (1981), *Xylotopus* Oliver (1982), *Plhudsonia* Sæther (1982), *Irisobrillia* Oliver (1985), *Tokyobrillia* Kobayashi & Sasa (1991) and *Pseudobrillia* Niitsuma (1991). *Tokunagayusurika* is closely related to

*Propsitocerus* Kieffer and these genera will be treated in a forthcoming paper. *Plhudsonia* is related to *Diptocladus* Kieffer as confirmed in a recent paper (Sæther 1992). The remaining genera are related to *Brillia* Kieffer and *Eurycnemus* van der Wulp. (Sæther 1977, 1989).

The generic diagnosis of *Euryhapsis* is augmented here and a new species *E. fuscipropes* described.

The genera *Irisobrillia*, *Tokyobrillia* and *Pseudobrillia* differ from other members of the *Brillia* group, i.e. *Brillia*, *Xylotopus*, *Austrobrillia* Freeman, *Xylotopus*, *Eurycnemus* and *Euryhapsis*, in having single gonostyli. They apparently form a group

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of closely related genera and the two latter genera should perhaps be regarded merely as a subgenera of the former. A new species from Tanzania, *Tokyobrillia anderseni* sp.n., is described here, and a review of the genera of the *Brillia* group with simple gonostyli given.

## 2. Methods and terminology

The material measured was mounted on slides in Canada-balsam following the procedure outlined in Sæther (1969 : 1).

The general terminology follows Sæther (1980, 1990). The counts of setae on the wing veins include both dorsal and ventral setae, setae which stands at the margin of a vein are regarded as belonging to the vein.

In the figures of the male genitalia the dorsal view is shown to the left, the ventral aspect and the apodeme to the right. The measurements are given as ranges followed by a mean when four or more measurements are made, followed by the number measured in parentheses (n).

The types are placed in the collection of the Museum of Zoology, Bergen, Norway (ZMB), in the collection of Xinhua Wang, Nankai University, Tianjin, China (ZW) or in the collection of Tadashi Kobayashi, Kawasaki, Japan (TK). Additional paratypes have been deposited in the Canadian National Collection, Ottawa, Canada (CNC) and at Zoologisches Staatssammlung, Munich, Germany (ZSM).

## 3. The genus *Euryhopsis* Oliver

*Euryhopsis* Oliver 1981 : 711. Type species *Euryhopsis cilium* Oliver, 1981 (original designation).

### *Diagnosis*

As in Oliver (1981) with the following additions : Male antenna with groove beginning on flagellomere 3, sensilla chaetica on flagellomeres 2-4 and ultimate. Third segment of maxillary palp with 2 very long lanceolate sensilla clavata at apex.

Tergite IX of female genitalia without posterior emargination, but with two setigerous protrusions. All three seminal capsules with common opening, the median one thin-walled.

### *Systematics*

The genus *Euryhopsis* apparently form the sister-group of *Eurycnemus* (Oliver 1981, Sæther 1989)

and belongs in the same group as *Brillia*, *Xylotopus*, *Austrobrillia*, *Irisobrillia*, *Tokyobrillia* and *Pseudobrillia* i.e. the *Brillia* group. The similarities between these genera may to a large extent consist in symplesiomorphies. As mentioned by Oliver (1985 : 1106), a likely symplesiomorphy is the superior volsella which is unique within Orthocla-diinae, except for *Phudsonia*, *Tokunayusrika* and perhaps *Chasmatonotus* Loew, having a similar volsella. The absence of a similar volsella would, however, constitute a synapomorphy for the remaining orthoclaids. The very long and oblique RM cross-veins, however, appear to be a unique synapomorphy for the *Brillia* group.

Sæther (1992) suggested that the reduced third seminal capsule with separate duct and opening and the common opening of the ducts of the two normal capsules was a unique synapomorphy between *Phudsonia* and *Diplocladius*. However, as shown below also *Tokyobrillia* shows the same configuration of the spermathecal system. In *Euryhopsis* the three ducts open together, but with the one leading from the thin-walled median capsule quite similar to *Phudsonia* and *Tokyobrillia*. Also in *Xylotopus* the median capsule is slightly reduced. The shape of the spermathecal system thus may be a synapomorphy for the *Brillia* group plus *Diplocladius* and *Phudsonia*, with secondary loss of a seminal capsule in *Brillia* and *Pseudobrillia*, Sæther (1979, Fig. 7) illustrated a South American female described as *Spaniotoma* (*Orthocladus*) *eurycnemoides* Edwards and placed it in *Psectrocladius* because of the large pulvilli, lack of acrostichals and genitalia very similar to *Psectrocladius*, except for the spermathecal system. The similarities of the genitalia of *Euryhopsis* and *Tokyobrillia* to those of *Psectrocladius* now makes it likely that also this species belongs in the *Brillia* group, and not in *Psectrocladius*. The species has a conspicuous black ornamentation on thorax, abdomen and legs common in the *Brillia* group, but not found in *Psectrocladius*. It probably belong to *Eurycnemus*, which possesses well developed pulvilli.

*Euryhopsis cilium* Oliver

*Euryhopsis cilium* Oliver 1981 : 714.

Material studied : Paratypes ♂, ♀ : Canada, Northwest Territories, Harris River, 24.VI.1972, F.W.I. Pipeline Project (ZMB).

**Description****Male imago**

As in Oliver (1981: 714) with the following additions: Wing with 19 setae on Sc, RM, M and Pcu; R with 23 setae,  $R_1$  with 32,  $R_{4+5}$  with 38,  $M_{1+2}$  with 57,  $M_{3+4}$  with 38, Cu with 2,  $Cu_1$  with 20, and An with 15 setae. Wing membrane without setae in cell m basally of RM.

**Female imago**

As in Oliver (1981: 75) with the following additions: Antennal ratio 0.40. Flagellomeres length (in  $\mu\text{m}$ ): 105, 60, 60, 64, 113.

Wing with 2 setae on brachiolium, Sc with 13 setae, costal extension with 8 non-marginal setae, RM with 3, R with 8,  $R_1$  with 78,  $R_{4+5}$  98, M with 6,  $M_{1+2}$  with 93,  $M_{3+4}$  with 90, Cu with 45,  $Cu_1$  with 36, Pcu with 5, and An with 60 setae. Wing membrane with 20 setae in cell m basally of RM.

Hind metatarsus with 6 sensilla chaetica at 0.19-0.26.

Abdomen with 36 setae on tergite VIII, 51 on sternite VIII.

Genitalia as in Fig. 1. Gonocoxite IX with 23 setae. Tergite IX divided into two setigerous protrusions with altogether 25 setae. Cercus is 158  $\mu\text{m}$  long. Seminal capsule 68  $\mu\text{m}$  long 60  $\mu\text{m}$  wide. Notum 101  $\mu\text{m}$  long

***Euryhopsis fuscipropes* sp. n.**

(Fig. 2).

Type material: Holotype  $\sigma$  China, Ningxia, Mt. Liupan, 7VIII. 1987. X. Wang (XW No. 1245). Paratypes 2  $\sigma$ , as holotype (XW, ZMB).

**Diagnostic characters**

The species is distinguished by having all of front tibia and tarsi blackish brown. It is separable from the similar *E. cilium* by having setae on wing veins Sc, M and Pcu and in cell m, but fewer setae on squama; and transverse sternapodeme with longitudinal median ridge and slightly convex sides.

**Etymology**

From the Latin *fuscus*, brown, dark; *pro-*, in front, first etc., and *pes*, foot, referring to the dark front leg.

**Description**

Male imago ( $n=3$ , except when otherwise stated). Total length 3.95-4.30 mm. Wing length 2.48-2.61 mm. Total length/wing length 1.60-1.68. Wing length/length of profemur 2.34-2.50. Coloration pale brown. Legs stramineous with apices of femora, bases of middle and hind tibia, and all of front tibia and front tarsi blackish brown. Abdomen with anterior dark band on tergites II-VII widest laterally, and tergites VIII-IX dark medially. Wing with third axillary sclerite dark apically.

Head (Fig. 2A). AR 1.51-1.67. Ultimate flagellomere 699-747  $\mu\text{m}$  long. Temporal setae 18-20(2), including 6-7(2) inner verticals, 6-7 outer verticals, and 6(2) postorbitals. Clypeus with 15-22 setae. Tentorium 154-184  $\mu\text{m}$  long, 34-38  $\mu\text{m}$  wide. Stipes 146-184  $\mu\text{m}$  long, 60  $\mu\text{m}$  wide. Palp segments lengths (in  $\mu\text{m}$ ): 41-49, 60-64, 158-164, 173-184, 191-210. Third palpal segment with 2 very long slender sensilla clavata at apex.

Thorax (Fig. 2B). Antepronotum with 2 median and 9-10 lateral anteprenotals. Dorsocentrals 38-47, in 1-3 row, prealars 9-10, and supraalar 1. Scutellum with 18-22 setae.

Wing (Fig. 2C). VR 1.25-1.29. C extension 71-90  $\mu\text{m}$  long. Brachiolium with 5-8 setae, C extension with 12-22 non marginal setae, Sc with 15-21, R with 55-66,  $R_1$  with 64-84,  $R_{4+5}$  with 127-133, RM with 0-1, M with 3-11,  $M_{1+2}$  with about 90-125,  $M_{3+4}$  with about 95-120, Cu with 56-63,  $Cu_1$  with 45-60, Pcu with 25-33 apically, and An with 57-62 setae. Wing membrane with 2-10 setae in cell m basally of RM, other cells extensively setose. Squama with 8-12 setae.

Legs. Spur of front tibia 56  $\mu\text{m}$ (1) long, spurs of middle tibia 56-64  $\mu\text{m}$  and 53-60  $\mu\text{m}$  long, of hind tibia 71  $\mu\text{m}$ (2) and 53-60  $\mu\text{m}$  long. Width at apex of front tibia 53-56  $\mu\text{m}$ (2), of middle tibia 49-60  $\mu\text{m}$ , of hind tibia 56-66  $\mu\text{m}$ . Comb of 6-8 setae, shortest setae 34-49  $\mu\text{m}$  long, longest setae 53-68  $\mu\text{m}$  long. Sensilla chaetica not observed. Lengths (in  $\mu\text{m}$ ) and proportions of legs:

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV	BR
P <sub>1</sub>	992-1115	1295-1370	1101(1)	—	—	—	—	0.80(1)	—	2.26(1)	2.9(1)
P <sub>2</sub>	992-1119	973-1077	482-548	265-293	175-198	104-123	76-85	0.49-0.50	3.81-3.95	4.02-4.11	2.8-5.0
P <sub>3</sub>	1143-1238	1299-1408	803-888	458-496	302-340	170-198	85-95	0.62	3.16-3.24	3.02-3.04	3.3-4.7(2)

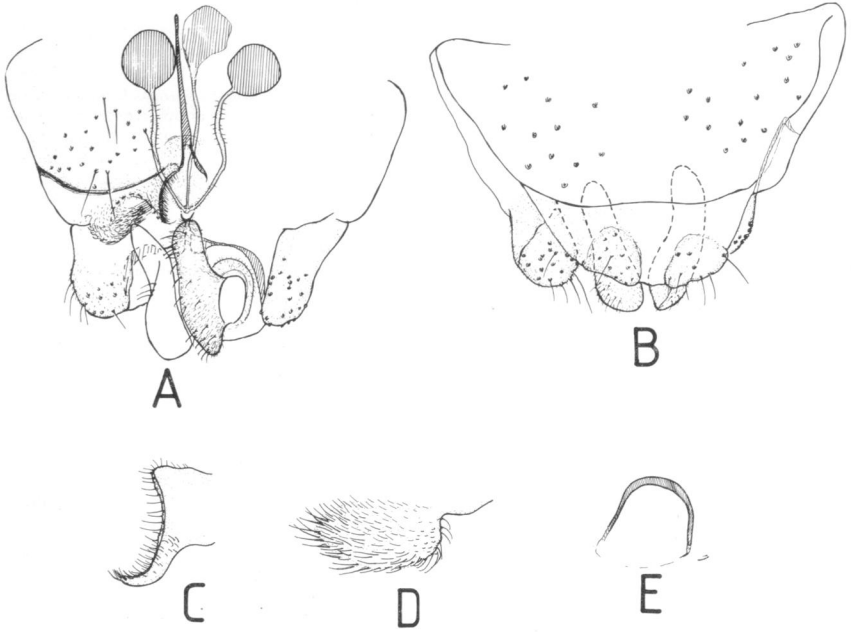


Fig. 1. *Euryhapsis cilium* Oliver, female genitalia : A. Ventral view ; B. Dorsal view ; C. Dorsomesal lobe ; D. Ventrolateral lobe ; E. Apodeme lobe.

Fig. 1. *Euryhapsis cilium* Oliver, genitalia femelle : A. Vue ventrale ; B. Vue dorsale ; C. Lobe dorsomérial ; D. Lobe ventrolatéral ; E. Lobe apodème.

**Hypopygium** (Fig. 2D). Tergite IX with 21-28 setae in two groups, laterosternite IX with 12-16 setae. Phallapodeme 98-105  $\mu\text{m}$  long ; transverse sternapodeme rectangular with weakly convex sides, concave apex and longitudinal 30-45  $\mu\text{m}$  long median ridge. Gonocoxite 225-270  $\mu\text{m}$  long ; superior volsella 131-150  $\mu\text{m}$  long, 32-36  $\mu\text{m}$  wide, with 10-13 setae, about 10 apical microtrichia, and a few basolateral microtrichia ; inferior volsella 56-60  $\mu\text{m}$  long, digitiform, not tapering, with microtrichia and 12-14 setae. Gonostylus 98-113  $\mu\text{m}$  long from base to apex of apical lobe, 116-135  $\mu\text{m}$  long from base to apex

of subapical lobe, distance from base to furcation 38-41  $\mu\text{m}$  ; with 2 terminal, 2 subterminal lamellate setae, 5-6 additional lateral setae, and microtrichia in basal half of apical lobe. HR 2.31-2.40, HV 3.81-4.05.

#### Remarks

The species will key to *E. cilium* in Oliver (1981). It differs in having dark front leg, more numerous setae on the wing but fewer on the squama, transverse sternapodeme with median ridge, and apical lobe of gonostylus with microtrichia.

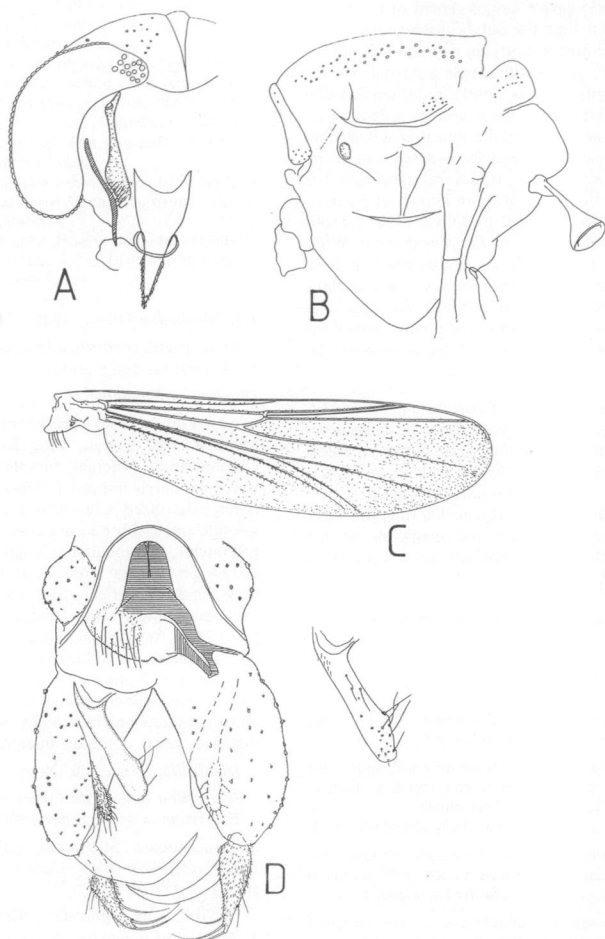


Fig. 2. *Euryhopsis fuscipropes* sp.n., male imago : A. Head ; B. Thorax ; C. Wing ; D. Hypopygium with ventral view of superior volsella.

Fig. 2. *Euryhopsis fuscipropes* n.sp., imago mâle : A. Tête ; B. Thorax ; C. Aile ; D. Hypopyge avec vue ventrale de la volsella supérieure.

#### 4. A review of genera near *Irisobrillia* Oliver

Oliver (1985) gave a key to genera of the *Brillia* group. At that time the only known genus of the group with simple gonostylus was *Irisobrillia* Oliver. Two more genera with simple gonostyli, *Tokyobrillia* Kobayashi & Sasa (1991) and *Pseudobrillia* Niitsuma (1991), have since been described. The three genera are quite similar and it is conceivable that they all should be regarded as subgenera of *Irisobrillia*. However, there are several significant differences and the immatures are known of *Pseudobrillia* only. As indicated by Oliver (1985 : 1106) either *Euryhopsis* Oliver or *Eurycnemus* v.d. Wulp appear to be the most closely related genus to these genera. However, while the presence of a third thin-walled seminal capsule in *Tokyobrillia* suggests a relationship with *Euryhopsis*, the absence of a third capsule in *Irisobrillia* and *Pseudobrillia* suggests that these genera are closer to *Brillia*.

The simple gonostylus of *Irisobrillia*, *Tokyobrillia* and *Pseudobrillia* appears to be secondarily developed for instance from the fusion of the subapical and apical lobes of *Euryhopsis* with the subapical lobe forming the main element. The megaseta present in *Irisobrillia* and *Tokyobrillia* thus probably is not homologous with the megaseta of the gonostyli of the other orthoclad, but a secondarily thickened seta.

##### Key to male imagines of genera near *Irisobrillia*

- Gonostylus without macroseta or other strong setae, subcosta bare ; Japan and China ..... *Pseudobrillia komorii* Niitsuma  
Gonostylus with long apical macroseta and 2-3 strong preapical setae, subcosta with setae ..... 2
- Hind tibial comb absent, front tibia with spur, wing cuneiform, megaseta about one fourth as long as gonostylus ; Venezuela, West Indies ..... *Irisobrillia longicosta* Oliver  
Hind tibial comb present, front tibia without spur, wing not cuneiform, megaseta about half as long as gonostylus ..... *Tokyobrillia* Kobayashi & Sasa 3
- Gonostylus with 3 preapical setae ; thorax, abdomen and legs completely pale yellow ; Japan and China ..... *T. tamamegaseta* Kobayashi & Sasa  
Gonostylus with 2 preapical setae, dark markings on thorax, abdomen banded, legs slightly ringed ; Tanzania ..... *T. anderseni* sp.n.

##### Key to female imagines of genera near *Irisobrillia*

- Third thin-walled seminal capsule present, front tibia without spur, hind tibial comb present ..... *Tokyobrillia* Kobayashi & Sasa 2  
Two seminal capsules present, front tibia with spur, hind tibial comb present or absent ..... 3
- Thorax with markings, abdomen banded, legs slightly ringed ; Tanzania ..... *T. anderseni* sp.n.  
Thorax, abdomen and legs unmarked, Japan and China ..... *T. tamamegaseta* Kobayashi & Sasa
- Hind tibial comb absent, wing cuneiform, subcosta with numerous setae ; Venezuela and West Indies ..... *Irisobrillia longicosta* Oliver  
Hind tibial comb present, wing not cuneiform, subcosta at most with a few setae ; Japan and China ..... *Pseudobrillia komorii* Niitsuma

#### 4.1. *Irisobrillia* Oliver, 1985 : 1105

Type species *Irisobrillia longicosta* Oliver, 1985 : 1109 (original designation)

##### *Diagnosis of imagines*

As in Oliver (1985) with the following additions : Medium sized species, wing length 1.0-2.8 mm. Coronal suture of female complete. Tentorium with sieve pore barely indicated. Stipes with median plate barely sclerotized. Cibarial pump with slightly convex side and evenly concave apex. Female with 5 flagellomeres, 1st subequal in length to 5th and about 1/3 longer than each of 2-4, all flagellomeres with long sensilla chaetica. All veins except  $R_{2+3}$  and sometimes M with setae. Postcubitus ending far distal to FCu. An not reaching FCu. Female genitalia with tergite IX undivided, but with setae arranged into 2 groups. Notum with rami continuing in parallel. Two well sclerotized bare seminal capsules. Spermathecal ducts nearly straight, widened for a long distance before common opening.

##### *Irisobrillia longicosta* Oliver

*Irisobrillia longicosta* Oliver 1985 : 1109

*Eurycnemus* sp., Sæther 1981 : 2

Material studied : St. Vincent, Majorca Estate, Yam-bou River, 442 m a.s.l., Malaise trap, A.D. Harrison, 1 ♀ (ZMB).

The following augments the description of female *I. longicosta* given by Oliver (1985) and Sæther (1981).

Female imago (n = 1)

Total length 1.47 mm. Wing length 1.01 mm. Wing length/length of profemur 2.28.

Head (Sæther 1981 fig. 1A). Temporal setae 12, including 6 inner verticals, 3 outer verticals and 3 postorbitals. Clypeus with 14 setae. Tentorium 90  $\mu\text{m}$  long, 11  $\mu\text{m}$  wide. Stipes 94  $\mu\text{m}$  long, 15  $\mu\text{m}$  wide. Palp segments length (in  $\mu\text{m}$ ): 19, 23, 64, 64, 75.

Thorax (Sæther 1981 fig. 1B). Anteprenotum with 6 dorsolateral setae and 3 ventral setae. Dorsocentrals 19, prealars 4, supraalar apparently absent (thorax broken). Scutellum with 10 setae.

Wing (Sæther 1981 fig. 1C). VR 1.75. C extension 101  $\mu\text{m}$  long. Brachiolum with 2 setae, C extension with 33 non-marginal setae, Sc with 21, R with 26,  $R_1$  with 20,  $R_{4+5}$  with 35, RM with 2, M with 1,  $M_{1+2}$  27, Cu with 37,  $Cu_1$  with 14, Pcu with 30, and An with 14 setae. Wing membrane with 17 setae in cell m basally of RM, other cells extensively setose. Squamal setae not observed.

Legs. Spur of front tibia 23  $\mu\text{m}$  long, spurs of hind tibia 34  $\mu\text{m}$  and 30  $\mu\text{m}$  long. Width at apex of front tibia 26  $\mu\text{m}$ , of hind tibia 30  $\mu\text{m}$  long. Comb of hind tibia absent. Front femur 444  $\mu\text{m}$  long, hind femur 477  $\mu\text{m}$  long, front tibia 482  $\mu\text{m}$  long, hind tibia 539  $\mu\text{m}$  long. Tarsi lost.

Abdomen. Tergite VIII with 16 setae. Sternite VIII with 42 setae.

Genitalia (Sæther 1981 fig. 1D). Gonocoxite with 7 setae. Tergite IX with 16 setae. Cercus 56  $\mu\text{m}$  long. Seminal capsules 53  $\mu\text{m}$  long, 39  $\mu\text{m}$  wide; no third transparent seminal capsule observed on this well cleared specimen. Notum 71  $\mu\text{m}$  long.

#### Remarks

Oliver (1985 : 1109) regarded the female from St. Vincent as conspecific with the males from Venezuela. Although this seems highly likely it should be mentioned that the female is considerably smaller and that setae on the squama not were observed in the female. However, since the squama is not complete, the thorax broken, and the tarsi lost, a final decision about conspecificity can only be made on additional material.

#### 4.2. The genus *Tokyobrillia* Kobayashi & Sasa

*Tokyobrillia* Kobayashi & Sasa, 1991 : 73

*Orthoclaadiini* gen. sp., Kobayashi 1991 : 80

Type species *Tokyobrillia tamamegaseta* Kobayashi & Sasa, 1991 : 74 (original designation).

#### Diagnosis of *imagines*

Medium sized species, wing length 1.4-2.0 mm. Coloration pale to yellowish brown, with or without dark markings or bands on thorax, abdomen and legs.

Eyes with long and rectangular dorsomedial extension, bare but with microtrichia present medial to ommatidia on inner margin and on apex of dorsomedial extension. Coronal suture of female complete, reduced or absent. Tentorium with sieve pore barely indicated, usually with a few basal microtrichia, widest near base in female. Stipes with median plate barely sclerotized. Cibarial pump with slightly convex side and evenly concave apex. Temporal setae extending from behind and above eyes to near coronal suture, with inner verticals relatively numerous. Clypeus with setae on raised area. Maxillary palp 5-segmented, 3rd segment longer than 4th and subequal in length to 5th; sensilla clavata present on lateral and median apex of 3rd, on lateral apex of 4th.

Antennal ratio of male higher than 1; groove starts on flagellomeres 3 or 4; very long sensilla chaetica present at least on flagellomeres 2 and 3 and possibly always on 2-5 and ultimate, no strong apical seta. Female with 5 flagellomeres, 1st subequal in length to 5th and about 1/3 longer than each of 2-4, all flagellomeres with long sensilla chaetica.

Anteprenotal lobes, widely separated medially, with dorsal and ventral setae and additional dorsolateral setae in female. Scutal projection rectangular, rising above anteprenotum. Dorsocentrals uni- to multiserial extending to near anteprenotum, acrostichals absent, prealars uni- biserial, supraalars absent, anepisternals and preepisternals absent. Scutellum with setae in uni- biserial transverse row.

Wing with weakly developed, not projecting anal lobe. Wing membrane with setae in most cells, with coarse punctation. All veins except  $R_{2+3}$  with setae. Costa strongly extended beyond  $R_{4+5}$  and ending near wing tip; R short;  $R_{2+3}$  running and ending close to  $R_1$ ;  $R_{4+5}$  ending distal to end of  $M_{3+4}$ ; RM long, oblique, and running nearly in direction of R; Cu<sub>1</sub> slightly curved; postcubitus ending far distal to FCu, An not reaching FCu. Squama with few setae.

Front tibia without spur, mid tibia with 2 spurs of equal length; hind tibia with 2 spurs of subequal

length, with oblique comb of few setae (5-10). Tarsi long bearded (but setae usually fallen off), some straight setae of 2 lengths, some curved and apparently narrowly scale-like. Pseudospurs absent, sensilla chaetica not observed. Pulvilli vestigial, claws small, normal.

Abdomen long and narrow with at least segment VII longer than wide. Tergites with multiple row of lateral setae and scattered, few to numerous setae over anterior 2/3 of tergites. Sternites with lateral row of setae and with anteriomedian concentration of median setae.

Male hypopygium with segment IX narrow, tergite IX with a group of setae on each side of midline on a more or less pronounced protrusion, anal point absent. Sternapodeme with straight or slightly concave sides, transverse sternapodeme nearly straight with oral projections directed mostly laterally. Phallapodeme well developed, with aedeagal lobe small. Virga absent. Gonocoxite parallel-sided and elongate; superior volsella elongate and narrow, with weak setae and a strong microtrichia in basal third or less.

Female genitalia with tergite IX divided in 2 setigerous protrusions. Gonocoxite IX well-developed, setiferous. Gonocoxapodeme VIII evenly curved. Gonapophysis VIII divided into large ventrolateral lobe with long apical microtrichia and well developed dorsomesal lobe. Notum relatively long with rami continuing in parallel. Apodeme lobe well developed. Postgenital plate large, triangular with rounded apex. Cerci well developed. Two well sclerotized and one thin-walled seminal capsule void of microtrichia. Spermathecal ducts of sclerotized capsules nearly straight, widened before partly common opening.

Pupa and larva. Unknown.

*Tokyobrillia anderseni* sp.n.  
(Figs. 3, 4).

Type material: Holotype: ♂: Tanzania, Tanga region, West Usumbara, Mts Mazumbai, Kaputo River, 4-6. XI.1990, ZMB Expedition (ZMB Type No. 149). Paratypes: 36 ♂, 52 ♀, as holotype except 28.X-13.XII. 1990 (ZMB, TK, XW, CNC, ZSM).

Diagnosis characters: See keys.

### *Etymology*

Named in honour of Mr. Trond Andersen, Museum of Zoology, Bergen, the leader of the expedition to Tanzania where these specimen were collected.

### *Description*

Male imago (n=10-12, except when otherwise stated).

Total length 2.69-3.63, 3.19 mm. Wing length 1.45-1.93, 1.71 mm. Total length/wing length 1.78-1.89, 1.85. Wing length/length of profemur 1.76-1.87, 1.82. Coloration pale brownish yellow with dark brown vittae, anterior and median anepisternum II, part of episternum and postnotum. Legs stramineous with front and usually mid trochanter dark, profemur darker in basal half, mid femur slightly darkened in basal half. Wing with brownish black spot apically in third axillary sclerite. Abdomen (Fig. 3E) with dark band in oral half of tergites II-VI, band often indicated also on I and VIII.

Head (Fig. 3A). AR 1.39-1.76, 1.55. Ultimate flagellomere 539-709, 631  $\mu\text{m}$  long. Temporal setae 10-20, 15; including 5-12, 9 inner verticals; 2-4, 3 outer verticals; and 2-4, 3 postorbital. Clypeus with 10-14, 12 setae. Tentorium 131-169, 150  $\mu\text{m}$  long; 21-30, 25  $\mu\text{m}$  wide. Stipes 118-173, 161  $\mu\text{m}$  long; 19-38, 25  $\mu\text{m}$  wide. Palp segments lengths (in  $\mu\text{m}$ ): 34-39, 36; 60-79, 70; 150-214, 191(6); 135-146, 41(4); 131-199, 171(4). Third palpal segment with 2 lateral and 1 median sensilla clavata, fourth with 1 lateral sensilla clavatum.

Thorax (Fig. 3B). Anteprepronotum with 4-7, 5 dorsomedian and 2-5, 4 ventrolateral setae. Dorsocentrals 24-53, 38 starting close to anteprepronotum; prealars 4-9, 7; supraalars absent. Scutellum with 12-19, 15.

Wing (Fig. 3c). VR 1.54-1.75, 1.63. C extension 71-113, 95  $\mu\text{m}$  long. Brachiolium with 2-4, 3 setae; C extension with 18-40, 31 non-marginal setae; Sc with 28-53, 39; R with 45-78, 64; R<sub>1</sub> with 40-78, 58; R<sub>4+5</sub> with 44-118, 88; RM with 4-15, 9; M with 1-6, 3; M<sub>1+2</sub> with about 80-120, 95; M<sub>3+4</sub> with 44-70, 56; Cu with 32-60, 51; Cu<sub>1</sub> with 24-40, 33; Pcu with 47-95, 72; and An with 26-56, 38 setae. Wing membrane with 18-48, 35 setae in cell m basally of RM, other cells extensively setose. Squama with 3-6, 4 setae.



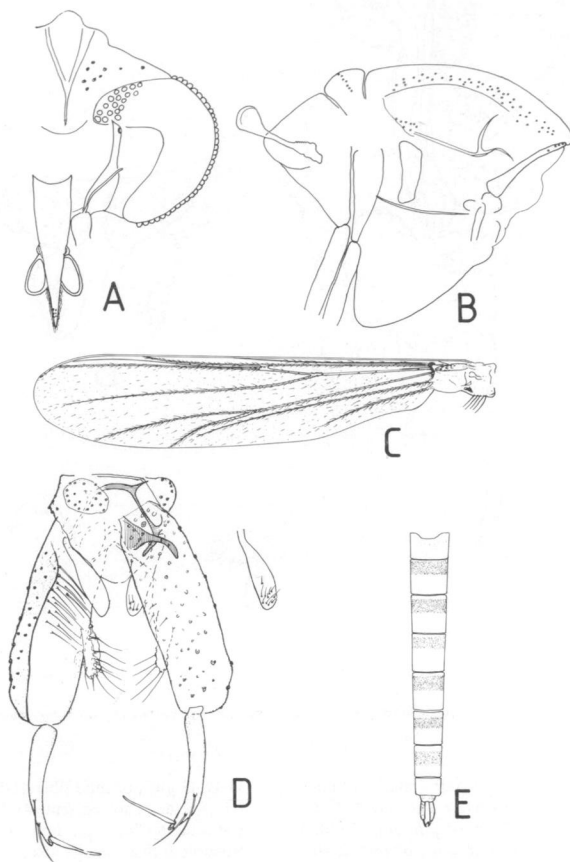


Fig. 3. *Tokyobrillia anderseni* sp.n., male imago : A. Head ; B. Thorax ; C. Wing ; D. Hypopygium with ventral view of superior volsella ; E. Abdomen.

Fig. 3. *Tokyobrillia anderseni* n.sp., imago mâle : A. Tête ; B. Thorax ; C. Aile ; D. Hopopyge avec vue ventrale de la volsella supérieure ; E. Abdomen.

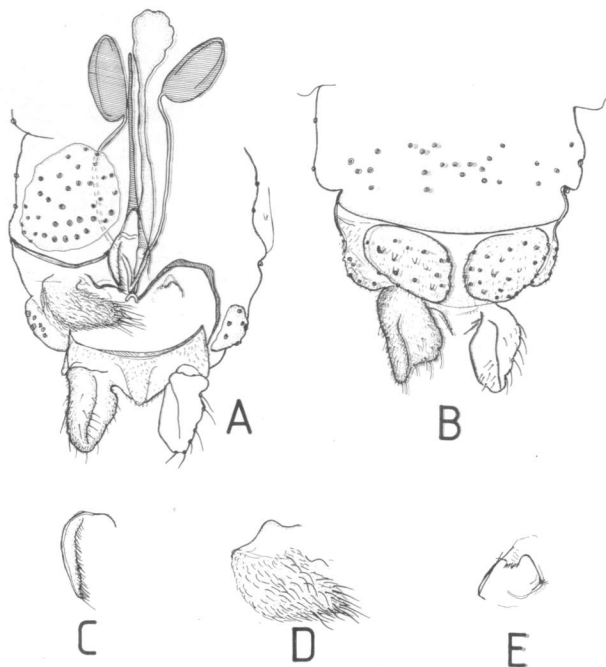


Fig. 4. *Tokyobrillia anderseni* sp.n., female genitalia : A. Ventral view ; B. Dorsal view ; C. Dorsomesal lobe ; D. Ventrolateral lobe ; E. Apodeme lobe.

Fig. 4. *Tokyobrillia anderseni* n.sp., genitalia femelle : A. Vue ventrale ; B. Vue dorsale ; C. Lobe dorsomesal ; D. Lobe ventrolatéral ; E. Lobe apodème.

Legs. Front tibia without spur ; spurs of middle tibia 53-71,62  $\mu\text{m}$  and 49-64,58  $\mu\text{m}$  long ; of hind tibia 71-90,81  $\mu\text{m}$  and 53-79,67  $\mu\text{m}$  long. Width at apex of front tibia 30-43,38  $\mu\text{m}$  ; of middle tibia

38-49,43  $\mu\text{m}$  ; of hind tibia 41-54,48  $\mu\text{m}$ . Comb of 7-10,8 setae ; shortest setae 41-53,44  $\mu\text{m}$  long ; longest setae 60-98,77  $\mu\text{m}$  long. Lengths (in  $\mu\text{m}$ ) and proportions of legs ( $n=3=5$  on  $ta_1-5$ , LR, BV, SV) :

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV	BR(n=0-2)
p <sub>1</sub>	775-1068,944	926-1304,1139	945-1044	473-548	312-383	208-246	85-89	0.85-0.86	2.55-2.72	2.10-2.15	—
p <sub>2</sub>	737-1025,899	671- 917, 895	520-662,613	260-331,309	165-213,199	104-128,120	57-76,69	0.69-0.73,0.71	3.36-3.61,3.48	2.83-3.25,3.00	4.2-5.0
p <sub>3</sub>	765-1049,938	832-1139,1004	633-898,796	350-491,437	241-350,304	132-194,169	66-85,79	0.76-0.81,0.79	2.75-2.83,2.78	2.34-2.52,2.45	5.4

Hypopygium (Fig. 3D). Tergite IX with 22-40, 29 setae in two groups laterosternite IX with 2-5, 3 setae. Phallapodeme 75-94, 81  $\mu\text{m}$  long; transverse sternapodeme 34-64, 51  $\mu\text{m}$  long. Gonocoxite 218-278, 256  $\mu\text{m}$  long; superior volsella 75-113, 100  $\mu\text{m}$  long; 23-34, 28  $\mu\text{m}$  wide; with 11-19, 13 weak setae or strong microtrichia ventrally; inferior volsella 53-90, 68  $\mu\text{m}$  long, with 8-16, 13 setae. Gonostylus 131-169, 153  $\mu\text{m}$  long, megaseta 60-79, 71  $\mu\text{m}$  long; basal preapical seta 56-71, 62  $\mu\text{m}$  long; apical preapical seta 38-60, 47  $\mu\text{m}$  long. HR 1.63-1.72, 1.67; HV 1.94-2.26, 2.10.

Female imago (n = 10, except when otherwise stated)

Total length 2.12-3.59, 2.66 mm. Wing length 1.58-2.09, 1.81 mm. Total length/wing length. Wing length/length of profemur 1.82-1.93, 1.86. Coloration as in male.

Head. AR 0.29-0.35, 0.32(6). Lengths (in  $\mu\text{m}$ ) of flagellomere (n = 6): 98-135, 113; 68-101, 85; 75-101, 90; 45-77, 66; 94-120, 109. Temporal setae 13-23, 17; including 8-18, 11 inner verticals; 2-4, 3 outer verticals; and 2-3, 3 postorbitals. Tentorium 120-146, 130  $\mu\text{m}$  long; 19-32, 22  $\mu\text{m}$  wide. Stipes 146-199, 164  $\mu\text{m}$  long; 19-34, 26  $\mu\text{m}$  wide. Palp segments lengths (in  $\mu\text{m}$ ): 30-45, 36; 56-90, 69; 169-199, 183(6); 124-139, 131(6); 184-225, 212(6).

Sensilla clavata as in male. Coronal suture incomplete 0-49, 31  $\mu\text{m}$  long; when not sclerotized indicated by shadow.

Thorax. Anteprepronotum with 8-13, 10 dorsomedian and dorsolateral setae, and 2-6, 4 ventral setae. Dorsocentrals 38-60, 49; prealars 10-14, 11; supraalars absent. Scutellum with 19-24, 22 setae.

Wing. VR 1.63-1.77, 1.68. C extension 94-135, 116  $\mu\text{m}$  long. Brachiolum with 3-6, 4 setae; C extension with 39-56, 47 non-marginal setae; Sc with 43-84, 62; R with 59-95, 75; R<sub>1</sub> with 61-96, 75; R<sub>4+5</sub> with about 105-185, 135; RM with 10-26, 18; M with 5-17, 12; M<sub>1+2</sub> with about 90-165, 125; M<sub>3+4</sub> with 49-100, 74; Cu with 49-80, 65; Cu<sub>1</sub> with 28-60, 42; Pcu with about 60-160, 100; and An with 30-53, 45 setae. Wing membrane with 48-117, 78 setae in cell m basally of RM; other cells extensively setose. Squama with 4-9, 6 setae.

Legs. Front tibia without spur; spurs of middle tibia 56-69, 61  $\mu\text{m}$  and 53-64, 56  $\mu\text{m}$  long; of hind tibia 68-86, 76  $\mu\text{m}$  and 53-71, 63  $\mu\text{m}$  long. Width at apex of front tibia 36-45, 40  $\mu\text{m}$ ; of middle tibia 39-53, 45  $\mu\text{m}$ ; of hind tibia 41-51  $\mu\text{m}$ . Comb of 5-9, 8 setae; shortest seta 34-53, 43  $\mu\text{m}$  long; longest seta 53-83, 75  $\mu\text{m}$  long. Lengths (in  $\mu\text{m}$ ) and proportions of legs (n = 2-3 on tarsi and ratios of mid and hind legs):

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV
p <sub>1</sub>	832-1153, 972	964-1342, 1163	—	—	—	—	—	—	—	—
p <sub>2</sub>	780-1058, 909	709-964, 829	520-619	236-288	161-189	95-113	57-66	0.67-0.71	3.71-3.94	2.94-3.15
p <sub>3</sub>	803-1077, 935	756-1134, 978	671-794	350-444	246-302	137-170	57-76	0.75-0.77	2.44-2.85	2.56-2.58

Abdomen. Number of setae on tergites I-VIII as: 36-56, 47; 47-78, 64; 55-110, 70; 65-120, 81; 60-117, 82; 49-97, 67; 40-85, 50; 20-39, 27. Number of setae on sternites I-VIII as: 0-2, 0; 13-66, 28; 26-75, 54; 45-103, 79; 60-135, 93; 63-128, 97; 56-110, 82; 72-132, 105.

Genitalia (Fig. 4). Gonocoxite with 10-22, 16 setae. Tergite IX barely to strongly divided into two setigerous protrusions with altogether 34-60, 47 setae. Cercus 71-114, 96  $\mu\text{m}$  long. Well sclerotized seminal capsules 60-83, 79  $\mu\text{m}$  long; 41-53, 47  $\mu\text{m}$  wide; thin-walled capsule 38-75, 56  $\mu\text{m}$  long; 36-41, 36  $\mu\text{m}$  wide. Notum 98-120, 104  $\mu\text{m}$  long.

### Remarks

The fragile nature of *Tokyobrillia* adults is exemplified by this collection from Malaise traps and sweep nets a along a stream in the West Usumbara Mts in Tanzania. None of the 52 females collected had retained their front tarsi and only 2 specimens had middle and hind tarsi. The bristle ratio probably is high on all legs, but the longer setae are few in number and fall off. The bristle ratio of the middle and hind leg was measurable in one male only out of 37.

*T. anderseni* is very similar to *T. tamamegaseta* from Japan and China, but easily distinguishable by the color pattern.

*Tokyobrillia tamamegaseta* (Kobayashi & Sasa)  
(Fig. 5)

*Tokyobrillia tamamegaseta* Kobayashi & Sasa 1991 : 74.  
*Orthocladiini* gen.sp. Kobayashi 1991 : 80.

Material studied : Japan, Kawasaki, Kama-Ku, Masu-  
gata ; near Tama River, light trap, 2 ♂, 2 ♀, 22.VI  
1990, 7.VI. 1991, T. Kobayashi (TK). China, Hainan,  
Bananghing, 1 ♂ 10.V.1998, X. Wang (XW).

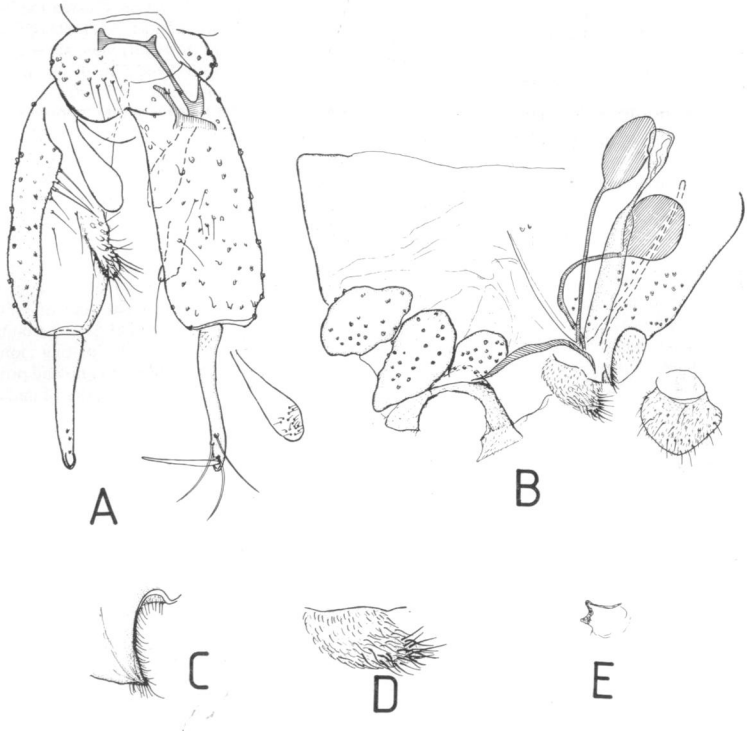


Fig. 5. *Tokyobrillia tamamegaseta* Kobayashi & Sasa : A. Male Hypopygium with ventral view of superior volsella ; B-E. Female genitalia ; ventrolateral view (B, cerci lost, with cercus of different specimen in lateral view) ; dorsomesal lobe (C) ; ventrolateral lobe (D) ; and apodeme lobe (E).

Fig. 5. *Tokyobrillia tamamegaseta* Kobayashi & Sasa : A. Hypopyge mâle avec vue ventrale de la volsella supérieure ; B-E. Genitalia femelle ; vue ventrolatérale (B, cerques perdus, avec cerque d'un spécimen différent en vue latérale) ; lobe dorsomérial (C) ; lobe ventrolatéral (D) ; et lobe apodème (E).

The following augments the description of *T. tamamegaseta* by Kobayashi & Sasa (1991) and Kobayashi (1991).

Male imago (n = 2 - 3 except when otherwise stated).

Third axillary sclerite with apical black spot. All measurements and counts within the variation of *T. anderseni* sp.n. with the following exceptions :

Wing length 1.34-1.66 mm. Wing length/length of profemur 1.68-1.88.

Head. AR 1.18-1.48. Ultimate flagellomere 473-567  $\mu\text{m}$  long. Sensilla chaetica present on flagellomeres 2-5 and ultimate.

Thorax. Dorsocentrals 21-37. Scutellum with 10-17 setae.

Wing. Subcosta with 52-56 setae, R with 40-54, R<sub>1</sub> 40-54, R<sub>1</sub> with 31-55, and M with 7-9 setae. Squama with 4-10 setae.

Legs. Comb of 5-6 setae. Bristle ration of middle leg 7.4(1), of hind leg 8.0(1).

Hypopygium (Fig. 5A). Gonocoxite 206-251  $\mu\text{m}$  long, superior volsella with 15-21 weak setae ventrally. Gonostylus 113-124  $\mu\text{m}$  long, basal preapical seta 56-60  $\mu\text{m}$  long, median 45  $\mu\text{m}$  long, apical preapical seta 34-38  $\mu\text{m}$  long.

Female imago (n = 1 - 2)

All measurements and counts within the variation of *T. anderseni* with the following exceptions :

Wing length 1.46-1.57 mm. Wing length/length of profemur 1.58-1.70.

Head. Flagellomere 4 71-79  $\mu\text{m}$  long, flagellomere 5 113-135  $\mu\text{m}$  long. Temporals 12-13, including 6-7 inner verticals. Three ultimate palpal segments lengths (in  $\mu\text{m}$ ) as : 39-146, 101-116, 150-169.

Thorax. Dorsocentrals 32, prealars 8. Scutellum with 15-17 setae.

Abdomen. Sternite VIII with 58 setae and probably fewer setae than in *T. anderseni* also on other sternites.

Genitalia (Fig. 5B-E). Notum 75  $\mu\text{m}$  long.

#### Remarks

The smaller measurements belong to the specimen from China, which also has lost the megaseta. The antennal ratio is lower (1.18), there are only few (4) setae on the squama, and the bristle ratios are very high. However, the bristle ratios could not be

measured on the Japanese specimens. None of the observed dissimilarities, however, are significant enough to warrant separate specific status.

Both this species and the following species are found only from the southern Oriental parts of China in addition to Japan, and suggest that the whole group of genera near *Irisosobrillia* is a Gondwanian element.

#### 4.3. The genus *Pseudobrillia* Niitsuma

*Pseudobrillia* Niitsuma, 1991 : 707

Type species *Pseudobrillia komorii* Niitsuma, 1991 : 709 (original designation).

#### Diagnosis

As in Niitsuma (1991) and essentially as in *Tokyo-brillia* with the following exceptions and additions : Anteprepronotum with dorsal and ventral setae and additional dorsolateral setae both in male and female. One or two supraalars present. Subcosta bare in male. Squama with about 13-27 setae. Inferior volsella fused with gonocoxite, vestigial.

*Pseudobrillia komorii* Niitsuma  
(Fig. 6)

*Pseudobrillia komorii* Niitsuma 1991 : 709

Material studied : China, Hainan, Banvanging, 1  $\sigma$  10.V.1988, X. Wang (XW).

The following augments the description of *P. komorii* by Niitsuma (1991).

Male imago (n = 1)

Wing length about 1.6 mm (2.1-3.2. in Niitsuma). Wing length/length of profemur about 1.7 in Chinese specimen, about 2.5-2.7 in Niitsuma. Thorax apparently without markings in Chinese specimen.

Thorax. Supraalars 2 (1 in Niitsuma). Scutellum with 18 setae (22-49 in Niitsuma).

Wing. Subcosta bare, R with 70 setae, R<sub>1</sub> with about 50, R<sub>4+5</sub> with about 80, RM with 4, M with 21, and Cu with about 50 setae ; setae on other veins not countable on damaged wing.

#### Remarks

The Chinese specimen may show up not to be conspecific with the Japanese. It apparently is more pale, has shorter wing, and 2 supraalars. However, the specimen is damaged and several details obscured. Most measurements fall at the lower end of the variation within *P. komorii*.

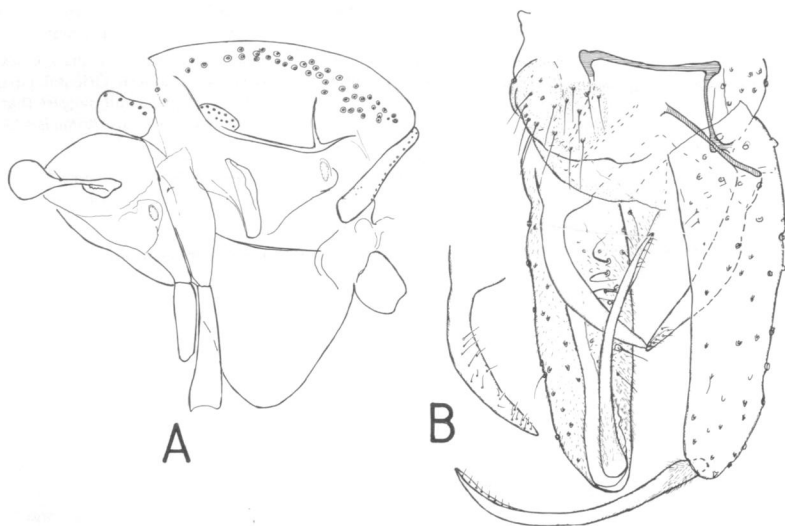


Fig. 6. *Pseudobrillia komorii* Niitsuma, male imago from China : A. Thorax ; B. Hypopygium.

Fig. 6. *Pseudobrillia komorii* Niitsuma, imago mâle de Chine : A. Thorax ; B. Hypopyge.

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