

Article

Four New Species of the Superfamily Amerobelboidea
from Yunnan Province in China
(Acari : Oribatida)¹⁾

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中国・雲南省で採集されたヨリメダニ上科の4新種
(ダニ目 : ササラダニ亜目)¹⁾

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Synopsis

Field researches on soil animals in Yunnan, Southeast China were conducted in October, 1997 by the Sino-Japanese Cooperative study team headed by one of the author Dr. J. Aoki. Nine species belonging to the superfamily Amerobelboidea have hitherto been reported from China by Aoki *et al.* (1997) : three species of *Eremulus*, one species of *Costeremus*, one species of *Fosseremus*, two species of *Eremobelba*, one species of *Fenestrella*. The present paper deals with new species, *Yambaramerus arcuatus* spec. nov., *Ctenobelba polysetosus* spec. nov., *Eremobelba yunnanensis* spec. nov. and *Cristamerus yunnanensis* spec. nov. *Yambaramerus arcuatus* spec. nov. is distinguishable from *Y. itoi* Aoki, 1996 from Japan, by having anterior margin of notogaster with a pair of semicircular ridges, 5 pairs of genital setae and very long and strong epimeral, aggenital and adanal setae. *Ctenobelba polysetosa* spec. nov. is distinguishable from *C. longisetosa* Suzuoka & Aoki, 1980 from Japan, by having small body size, sensillus with 11 pectinations and strong neotorichy on ventral side. *Eremobelba yunnanensis* spec. nov. is distinguishable from *E. coronata* Pérez-lñigo & Baggio, 1989 from Brazil, by having minutely barbed rostral setae, long notogastral setae, branched epimeral setae 3a and 4a. *Cristamerus yunnanensis* spec. nov. is distinguishable from *C. spinosus* Hammer, 1977 from Pakistan, by having small body, barbed prodorsal and adanal setae, long lamellar and interlamellar setae.

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Collecting Sights

Dari, Mt. Xuerefeng.

DA-1 : Grassland (*Sasa* sp. etc.), 27-X-1995, 3120m, S. Uéno.

Binchuan, Mt. Jizushan.

JZ-1 : Broad-leaved forest (*Castanopsis orthachantha*, *Castanopsis delavayi*, *Camellia pitardii* var. *yunnanensis* etc.), 25-X-1995, 2650m, Y. Yamamoto.

Lijiang, Mt. Yolonxueshan.

YL-2 : Mixed forest (*Tsuga forrestii*, *Picea likiangensis*, *Acer busrgerianum*, *Abies georgei* etc.), 21-X-1995, 3040m, Y. Yamamoto.

Descriptions of New Species

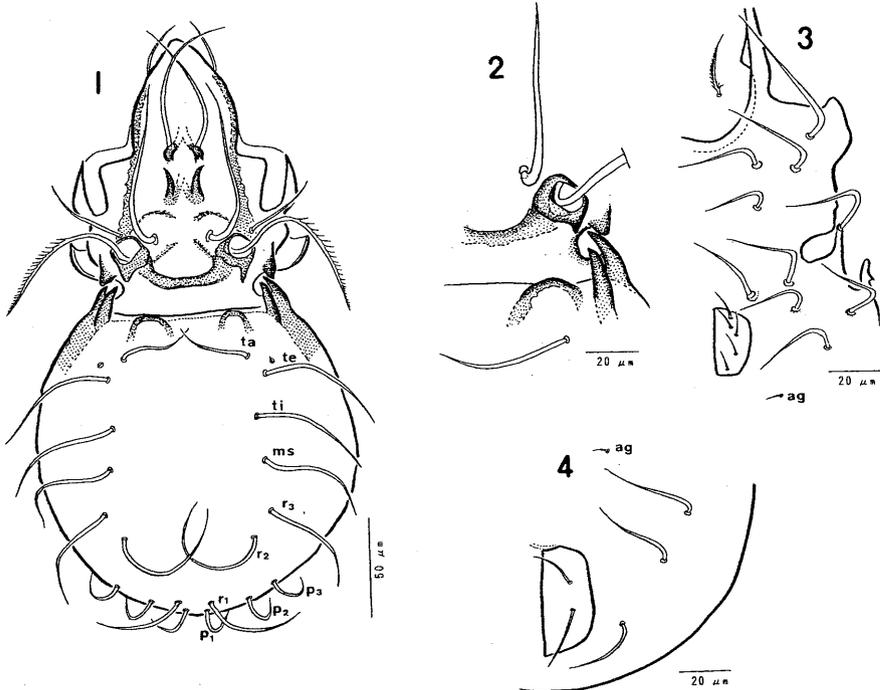
Yambaramerus arcuatus spec. nov.

(Figs. 1-4)

Measurement. Body length : 292 μ m ; width 156 μ m.

Color. Yellowish brown.

Prodorsum. Rostrum rounded. All prodorsal setae smooth, strong and thick. Lamellar seta arising from a prominent apophysis. A pair of distinct thorn-shaped projections found behind lamellar setae. Interlamellar seta very long, reaching the base of rostral seta. Relative length and mutual distances of prodorsal setae as follows : $in > le > ex > ro$; $ro > (ro-ro)$; $le > (le-le)$; $in > (in-in)$; $ex < (ex-ex)$. Sensillus as long as interlamellar seta, bearing dense pectination unilaterally. Bothridium with a large opening and a strong projection posteriorly ; another projection lateral to bothridium ; a distinct arch-shaped ridge connecting bothridia.



Figs. 1-4. *Yambaramerus arcuatus* spec. nov. 1 : Dorsal view 2 : Humeral projection
3 : Genital plate and epimeral setae. 4 : Anal plate.

Notogaster. Nearly circular, as long as wide. The anterior margin of notogaster nearly straight, with a pair of semicircular ridges behind it. Two pairs of horn-like projections found in humeral part of notogaster. Ten pairs of notogastral setae present; all the setae smooth, strong and thick; setae *te*, *ti*, *ms* and r_3 arranged in a longitudinal line and directed to lateral direction; seta r_2 directed inward and strongly curved; setae of p-series distinctly shorter than the remaining setae.

Ventral side. Anogenital chaetotaxy: 5-1-2-3. Genital plate provided with 5 smooth and thin setae. Anal plate provided with 2 long, smooth and strong setae. One aggenital seta, short as long as genital seta. Three adanal setae longer and thicker than anal setae. Epimeral part covered with membrane. Epimeral setae smooth, strong and thick, strongly curved inward near the basal part; seta 1c longer than the remainder. Setal formula of epimelata: 3-1-3-3.

Material examined. The holotype from *Sasa* sp. community, Mt. Xuerefeng, Dari, Yunnan Province, China. 27-X-1995, 3120m, S. Uéno, (DA-1). Holotype will be deposited in Shanghai Institute of Entomology, Academia Sinica, Shanghai, China.

Remarks. The genus *Yambaramerus* has been represented by only one species, *Y. itoi* reported by Aoki (1996) from Japan. The second species *Y. arcuatus* spec. nov. is pretty different from *Y. itoi*, being distinguishable from this by (1) anterior margin of notogaster with a pair of semicircular ridges, (2) 5 pairs of genital setae, (3) epimeral, aggenital and adanal setae very long and strong.

Ctenobelba polysetosa spec. nov.

(Figs.5-8)

Measurement. Body length: 640 μ m; width 336 μ m.

Color. Yellowish brown.

Prodorsum. Rostral margin with a pair of projections. Rostral seta situated on dorsal surface of prodorsum. Anteromedian part of prodorsum with a drop-shaped hollow. Lamellae straight, equal in thickness throughout their length, almost parallel to each other. Outside each lamellar ridge found two curved ridges. Relative length and mutual distances of prodorsal setae as follows: $in > le > ro = ex$; $ro > (ro-ro)$; $le > (le-le)$; $in > (in-in)$; $ex < (ex-ex)$; $(in-in) > (le-le) > (ro-ro)$. Rostral seta barbed unilaterally. Lamellar, interlamellar and exobothridial setae smooth and thin. Sensillus has 11 pectinations, anterior 3 short.

Notogaster. Nearly circular, as long as wide. Dorsosejugal suture weak, nearly straight, slightly concave. Two pairs of low triangular condyles on anterior margin. Ten pairs of notogastral setae present. All setae smooth, long and whip-like, variable in length; *te*, *ti*, *ms*, r_2 and r_3 longest; *ta* and r_1 moderately long; p_1 , p_2 and p_3 nearly half as long as *ti*.

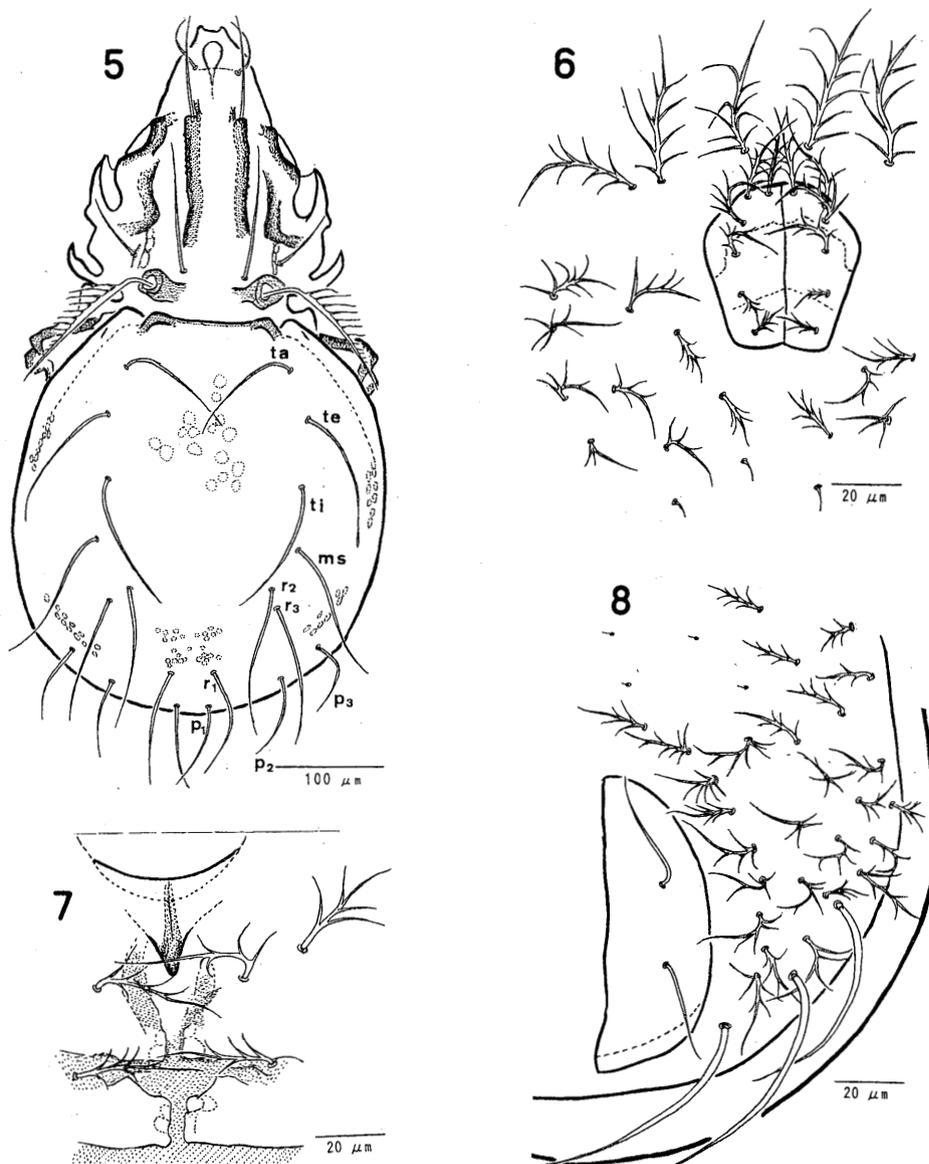
Ventral side. Genital plates wider anteriorly, provided with 6 pairs of branched setae; anterior 4 long and strongly branched; posterior 2 rather short. Anal plates provided with 2 pairs of long and smooth setae. A pair of aggenital setae short and simple. Three pairs of adanal setae very long and thick. A sword-like projection found in median part of epimeres I. Ventral plate showing a strong neotrichy, provided with about fifty branched setae on one side.

Material examined. The holotype from evergreen broad-leaved forest (*Castanopsis orthacantha*, *Castanopsis delavayi*, *Camellia pitardii* var. *yunnanensis* etc.), Mt. Jizushan, Binchuan, Yunnan Province, China. 25-X-1995, 2650m, Y. Yamamoto, (JZ-1). Holotype will be deposited in Shanghai Institute of Entomology, Academia Sinica, Shanghai, China.

Remarks. The present new species is similar to *C. longisetosa* Suzuoka & Aoki, 1980 from Japan, having smooth and strong notogastral setae and neotrichy on ventral plate, but is distinguishable from this by (1) small body size, (2) sensilli bearing 11 pectinations, (3) angular humeral projections, (4) more strong neotrichy on ventral plate with strongly branched setae, (5) six pairs of branched genital setae.

Eremobelba yunnanensis spec. nov.

(Figs.9-13)



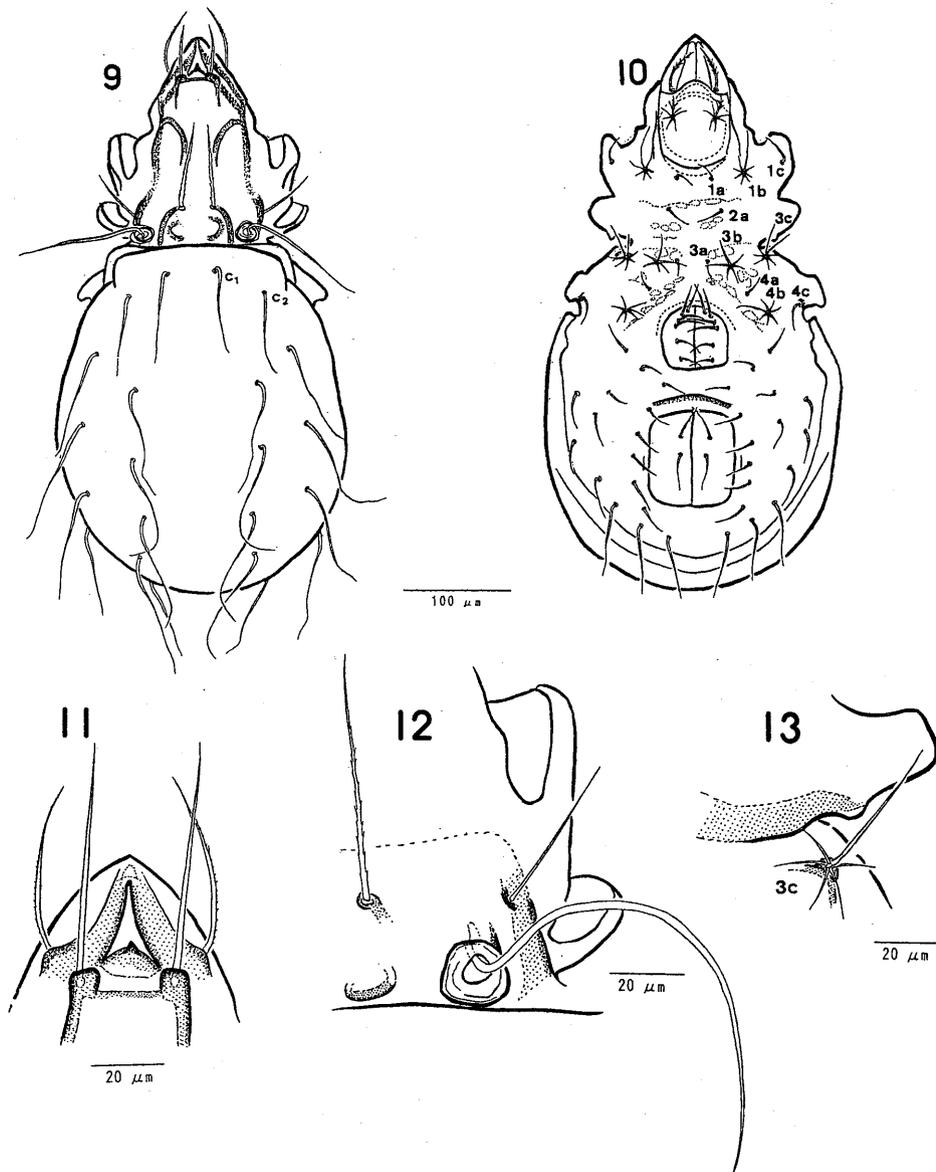
Figs. 5-8. *Ctenobelba polysetosa* spec. nov. 5: Dorsal view. 6: Genital plate. 7: Anal plate. 8: Median part of epimeres I and II.

Measurement. Body length: 448 (472) 504 μ m; width 248 (253) 264 μ m.

Color. Dark brown.

Prodorsum. Rostrum narrow, tip acutely triangular; a short thorn-like projection with semicircular base found internally behind the tip of rostrum. Rostral setae minutely barbed unilaterally, interlamellar setae barbed, exobothridial setae and sensilli almost smooth. Lamellar setae almost smooth, arising from prominent apophyses connected by a weak transverse ridge. Relative length and mutual distances of prodorsal setae as follows: $in > ro > ex > le$; $ro > (ro-ro)$; $le > (le-le)$; $in > (in-in)$; $ex > (ex-ex)$; $(ro-ro) > (le-le) = (in-in)$. A pair of distinct ear-like ridges found inside of lamellar ridges. On the posterior part of prodorsum found two pairs of ridges; the outer curved ridges bearing interlamellar setae on the anterior tip; the inner ridges strongly curved in semicircular form. All the surface of prodorsum covered by granular cerotegument.

Notogaster. Oval in shape, $1.27\times$ as long as wide. Anterior margin of notogaster nearly straight, slightly convex; humeral projection angulate. Eleven pairs of notogastral setae smooth and thin, attenuating into very thin and flagelliform tip. Notogastral setae c-series shorter than the remaining setae.



Figs. 9-13. *Eremobelba yunnanensis* spec. nov. 9: Dorsal view 10: Ventral view. 11: Tip of rostrum. 12: Sensillus. 13: Epimeral setae 3c.

Ventral side. Genital plate provided with 6 pairs of smooth setae; mutual distances of them as $(g_5-g_6)=(g_4-g_5)>(g_3-g_4)=(g_2-g_3)=(g_1-g_2)$. Anal plate provided with 2 pairs of setae, inserted rather anteriorly on anal plates. Setal formula of epimerata 3-1-3-3; setae 1*b*, 3*b*, 3*c* and 4*b* branched; the remaining setae smooth and thin.

Material examined. The holotype and 5 paratypes from evergreen broad-leaved forest (*Castanopsis orthacantha*, *Castanopsis delavayi*, *Camellia pitardii* var. *yunnanensis* etc.), Mt. Jizushan, Binchuan, Yunnan Province, China. 25-X-1995, 2650m, Y. Yamamoto, (JZ-1). Holotype will be deposited in Shanghai Institute of Entomology, Academia Sinica, Shanghai, China.

Remarks. The present new species is very similar to *E. coronata* Pérez-Iñigo & Baggio, 1989 from Brazil, but is distinguishable from this by (1) *in>ro>la*, (2) minutely barbed rostral setae, (3) almost smooth sensilli (4) longer notogastral setae, (5) unbranched epimeral setae 3*a* and 4*a*, (6) anal setae inserted anteriorly on anal plates.

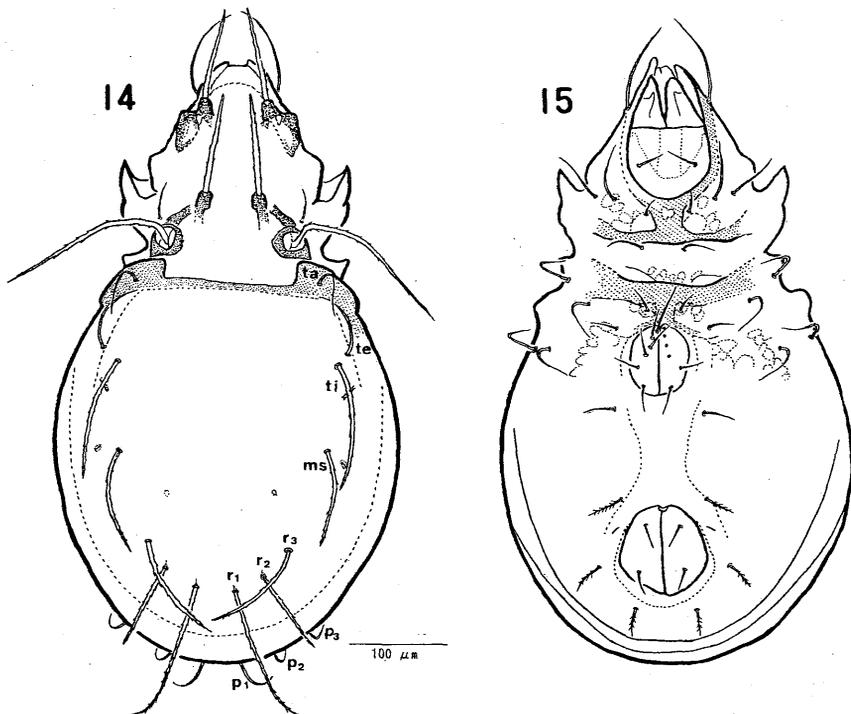
Cristamerus yunnanensis spec. nov.

(Figs. 14-19)

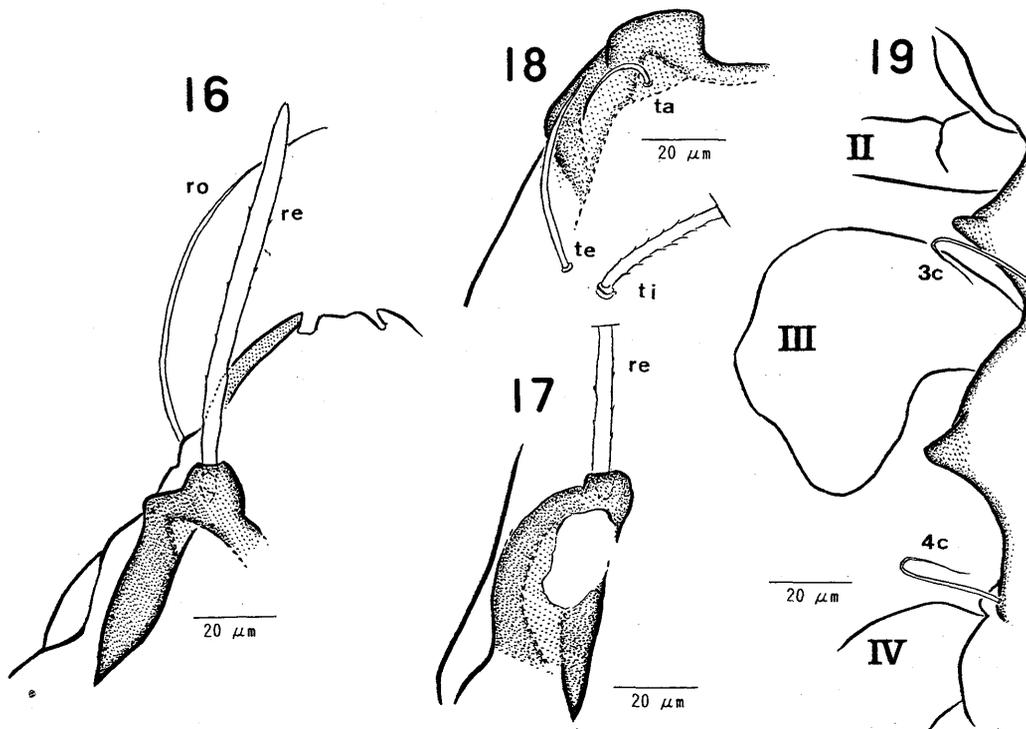
Measurement. Body length 632 (661) 720 μ m; width 350 (396) 440 μ m.

Color. Yellowish brown.

Prodorsum. Rostral margin weakly rounded, with a pair of short teeth rather blunt at tip. Rostral seta long, smooth and thin, situated lateral margin of prodorsum. Lamellar and interlamellar setae strong, stiff, thick and weakly barbed; lamellar and interlamellar setae arising each from a prominent apophysis.



Figs. 14-15. *Cristamerus yunnanensis* spec. nov. 14: Dorsal view. 15: Ventral view.



Figs. 16-19. *Cristamerus yunnanensis* spec. nov. 16: lamellar ridge. 17: lamellar ridge (diagonal view). 18: Humeral projection. 19: Epimeral setae 3c and 4c.

Interlamellar seta extending beyond the base of lamellar seta. Relative length and mutual distances of prodorsal setae as follows: $ro=in>le>ex$; $ro>(ro-ro)$; $le>(le-le)$; $in>(in-in)$; $ex(ex-ex)$; $(ro-ro)>(le-le)>(in-in)>(ex-ex)$. Bothridium with a short and anterior ridge. Sensilli barbed and longer than their mutual distance.

Notogaster. Oval in shape, $1.15\times$ as long as wide. The anterior margin of notogaster nearly straight. Humeral projection broad and prominent. Ten pairs of notogastral setae present: ta, ti, p_1, p_2 and p_3 short, smooth and thin the remainder thick and weakly barbed. Relative length and mutual distances of notogastral setae as follows: $r_1=r_3=ti>ms>r_2>te>ta>p_1>p_2=p_3$; $(te-te)>(ti-ti)>(ms-ms)>(ta-ta)=(p_3-p_3)>(r_3-r_3)>(r_2-r_2)=(p_2-p_2)>(r_1-r_1)=(p_1-p_1)$; $(ta-te)=4\times(te-ti)$.

Ventral side. Anogenital chaetotaxy: 6-1-2-3. Genital plate provided with 6 smooth and thin setae, the anteriormost one being the longest. A pair of aggenital setae smooth. Three pairs of adanal setae weakly barbed; ad_3 inserted in a level anterior to the anterior margin of anal opening. Adanal fissure aligned obliquely not parallel to the lateral margin of anal plate. Anterior part of the median slit of anal aperture forming a dark-colored small heart-shaped structure. Setal formula of epimerata: 3-1-3-3. All epimeral setae smooth, thin and variable in length; 1b, 1c, 3b, 3c, 4a and 4c longer than 1a, 2a, 3a and 4b.

Material examined. The holotype and 5 paratypes from mixed forest (*Tsuga forrestii*, *Picea likiangensis*, *Acer buszgerianum*, *Abies georgei* etc.), Mt. Yolonxueshan, Lijiang, Yunnan Province, China. 21-X-1995, 3040m, Y. Yamamoto, (YL-2). Holotype and a paratype will be deposited in Shanghai Institute of Entomology, Academia Sinica, Shanghai, China, and the other paratypes in the National Science Museum, Tokyo, Japan.

Remarks. The genus *Cristamerus* has been represented by only one species, *C. spinosus* reported by Hammer (1977) from Pakistan. The second species *C. yunnanensis* spec. nov. is different from *Y. itoi*, being distinguishable from this by (1) smaller body, (2) barbed lamellar and interlamellar setae and barbed sensilli, (3) longer lamellar and interlamellar setae, (4) notogastral seta situated close to *ti*, (5) barbed adanal setae.

要約

文部省科学研究所補助金による国際学術研究「中国南西部における土壤動物相の研究」の中日共同研究で雲南省の大理・雪人峰、賓川・鷄足山、麗江・玉龍雪山を調査し、Amerobelboidea 上科の4新種を発見した。*Kambaramerus arcuatus* spec. nov. は Aoki (1996) が日本から新属新種として報告した *K. itoi* とは胴体部前縁にある1対の半円状突起、性厩毛が5対、基節板毛、性側毛、肛側毛が非常に長く、太い等においてかなり異なっているため、新種とし、*Ctenobelba polysetosus* spec. nov. は Suzuoka & Aoki (1980) が日本から報告した *C. longisetosa* に胸背毛の形状、腹面の異数配列の点において類似しているもの、体型が小さい、胸感歪、性厩毛の形状等において相違しているため、新種とし、*Bremobelba yunnanensis* spec. nov. は Pérez-Iñigo & Baggio (1989) がラジアルから新種として報告している *E. coronata* に非常によく似ているもの、前体部の毛の長さ、胸背毛の長さ、基節板毛の形状において相違しているため、新種とし、*Cristamerus yunnanensis* spec. nov. は Hammer (1977) が西バキタムから報告している

C. spinosus に似ているもの、小型である、前体部の毛の形状、長さ等において相違しているため新種とした。

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