

## Some Species of the Genus *Trichotichnus* from Sichuan, Southwest China (Coleoptera, Carabidae, Harpalini)<sup>1)</sup>

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**Abstract** Four new species of the harpalid genus *Trichotichnus* are described from western and southern Sichuan, Southwest China, under the names *T. curticornis*, *T. satoi*, *T. calathiformis* and *T. gracilitibialis*. The first three belong to the subgenus *Amaroschesis*, the third one being related to *T. notabilangulus* and the other two to *T. obtusicollis* which is redescribed on the basis of the type series. The fourth species belongs to the subgenus *Trichotichnus* (s. str.) and is a member of the *longitarsis* group.

Many species of the genus *Trichotichnus* MORAWITZ, 1864, have been described mainly from Sichuan and Yunnan in China (TSCHITSCHÉRINE, 1897, 1906; SCHAUBERGER, 1936; ITO 1998 a, c, 1999; KATAEV & ITO, 1999, in press), most of them belonging to the subgenus *Amaroschesis* TSCHITSCHÉRINE 1898. These species have rudimentary hind wings and the distributional ranges are limited to so narrow areas that their speciation seems to have become much accelerated.

Recently I was able to examine numerous specimens of the tribe Harpalini collected by several expeditions to Sichuan made by Dr. Shun-Ichi UÉNO, Dr. Masataka SATÔ and Dr. Shûhei NOMURA, and found some new trichotichine species among them.

In this paper, I am going to describe four new species of the genus *Trichotichnus* under the names *Trichotichnus (Amaroschesis) curticornis*, *T. (A.) satoi*, *T. (A.) calathiformis* and *T. (Trichotichnus) gracilitibialis* and also to redescribe *Trichotichnus (Amaroschesis) obtusicollis* SCHAUBERGER, 1936. *Trichotichnus calathiformis* is peculiar in having the stylus of female genitalia with two spines along each external margin, since the spine is usually single in the genus. In the species of *Trichotichnus* from Sichuan and Yunnan, usually stable characteristics of the genus are often changeable.

Before going further, I wish to express my special gratitude to Dr. S.-I. UÉNO of the National Science Museum, Tokyo for his kindly giving me the opportunity to examine numerous materials collected by him and Dr. S. NOMURA. I must cordially thank Dr. Fritz GUSENLEITNER of the Oberösterreichisches Landesmuseum, Linz, for a long loan of SCHAUBERGER's types under his care. Also I would like to thank Dr. M. SATÔ of

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Nagoya Women's University, Nagoya, for a kind loan of his collectings. Further my thanks are due to Mr. Taichi SHIBATA, Nishinomiya for his continuous guidance to my taxonomic study.

All the holotypes of the new species to be described will be preserved in the National Science Museum (Nat. Hist.), Tokyo. Concerning the measurement of each body part, see ITO (1998 b).

### Abbreviations of the Depository

NSMT: collection of the National Science Museum (Nat. Hist.), Tokyo.

NWU: collection of Nagoya Women's University, Nagoya.

NI: the present author's collection, Kawanishi.

### *Trichotichnus (Amaroschesis) obtusicollis* SCHAUBERGER, 1936

(Figs. 1, 6 and 11–A)

*Trichotichnus obtusicollis* SCHAUBERGER, 1936, Kol. Rdsch., **21**: 11, 14–15.

Body oblong, comparatively elongate, convex, black, shiny, not iridescent; head slightly brownish from frons to vertex; labial palpi, antennae and tarsi dark reddish brown.

Head large, 0.70–0.71 times as wide as the width of head, with wide interocular space seven-tenths the greatest width, rather strongly elevated in vertex, very sparsely punctulate; labrum not or shallowly emarginate; clypeus transversely and weakly swollen in basal half in the holotype and almost flat in the cotype [paralectotype], with weakly produced apical corners; clypeal suture very fine and shallow throughout; frontal impressions shallow, engraved like fovea, obliterated in basal halves; eyes large and gently convex; temples short, one-fourth as long as eye length; genuine ventral margin of eye widely isolated from buccal fissure; mandibles robust, left mandible vertically truncate at apex, roundedly and weakly produced at terebral tooth and sharply so at retinacular tooth, right one pointed at apex, very slightly produced and arcuate at terebral tooth and widely blunt-triangular at retinacular tooth; antennae weakly moniliform, short, surpassing a little beyond pronotal base, 3rd segment pubescent in apical two-thirds, 1.08–1.18 times as long as the 4th and about twice the 2nd; 3rd segment of labial palpus slender, very sparsely pubescent and as long as the 2nd; ligula shallowly emarginate at sides, acutely produced at apical corners, and with truncate apex; paraglossae narrow, prolonged a little beyond ligula; mentum bearing clear suture with submentum, epilobes weakly expanded apicad, median tooth wide and pointed at apex; microsculpture partly absent, observed as somewhat clear isodiametric and transverse meshes.

Pronotum subquadrate, widest at apical two-fifths, a little more than one and two-fifths as wide as long (1.44–1.46 in ratio), widely and gently convex, the convexity closely approaching lateral borders; sides gently curved inwards and slightly arcuately



Fig. 1. Habitus and labels of *Trichotichnus (Amaroschesis) obtusicollis* SCHAUBERGER, 1936 (holotype).

convergent backwards from the widest point; apex uniformly emarginate, entirely bordered; base about one-tenth wider than apex, shallowly emarginate, hardly arcuate at sides, thickly bordered lengthwise as lateral borders; apical angles rather protrudent, more or less widely rounded; basal angles not angulate, larger than rectangle; lateral furrows each engraved in a line, slightly widened only near base, isolated from small basal fovea by a weak swelling; front transverse impression very shallow, though not invisible like the hind one; median line fine, shallow, and lying between the two impressions; surface mostly impunctate, sparsely punctate in lateral furrows and basal foveae; microsculpture partly carved on disc, clear in lateral furrows and basal foveae, composed of a mixture of transverse and isodiametric meshes.

Elytra oblong-oval, about a half longer than wide (1.51–1.53 in ratio), almost flat on disc, steeply declivous laterad and apicad, very sparsely and minutely punctate; sides gently curved at humeri, weakly rounded in middle, and hardly sinuate before apices, which are rounded, widely separated from each other and not angulate at sutural angles; bases emarginate; humeral angles rounded; striae narrow and shallow throughout, finely crenulate, scutellar striole short; intervals wholly flat, dorsal pore on 3rd interval located a little behind apical two-fifths; marginal series continuous or narrowly interrupted medially, composed of 20–21 umbilicate pores; microsculpture detectable as clear transverse meshes. Hind wings extremely reduced, 0.19 times as long as elytra.

Ventral surface mostly smooth, very sparsely punctate in lateral areas of metastern-

num and metepisterna, sparsely pubescent medially on pro- and metasterna and 2nd and 3rd abdominal sternites; metepisternum short, one-sixth shorter than wide; apical margin of 6th abdominal sternite clearly bordered, quadrisetose in both sexes, truncate in ♂ and clearly arcuate in ♀ at tip.

Legs short; hind femur bisetose along hind margin; fore tibia truncate at apex, bi- or trispinous apico-externally, not sulcate on dorsal surface; 1st segment of mid tarsus in ♂ biseriately squamous at apex, hind tarsus 0.88 times in ♂ and 0.73 times in ♀ as long as the width of head, 1st segment about two-thirds as long as the 2nd and 3rd segments combined, 2nd one-fifth longer than the 3rd and twice the 4th, claw segment quadrisetose in the holotype and trisetose in the cotype along each ventral side.

Aedeagus (Fig. 6) robust, weakly arcuate, thinned at apex, obliquely directed ventrad at tip; apical lobe triangular, a little wider than long, narrowly rounded at tip; apical lobe wide, sclerite of inner sac rounded, lying flat on the surface of the sac. Stylus (Fig. 11-A) short, slightly curved outwards, with a very minute spine along each outer margin; basal segment trisetose, apico-externally with short hairs; valvifer with two long setae at apex and one short and fine seta before apex.

Length: 9.4–9.7 mm. Width: 3.6–3.8 mm.

*Specimens examined.* 1 ♂ (holotype), Tatsienlu, Szetschwan (=Sichuan), Exp. Stötzner; 1 ♀ (cotype), same data as the holotype. (All the types are preserved in the Oberösterreichisches Landesmuseum, Linz)

*Trichotichnus (Amaroschesis) curticornis* N. ITO, sp. nov.

(Figs. 2, 7 and 11-B)

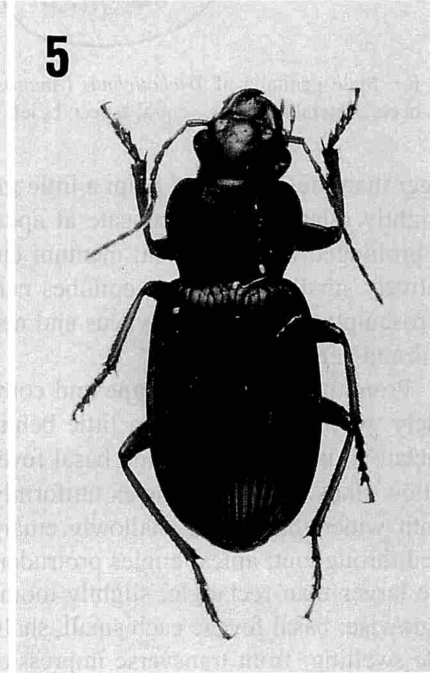
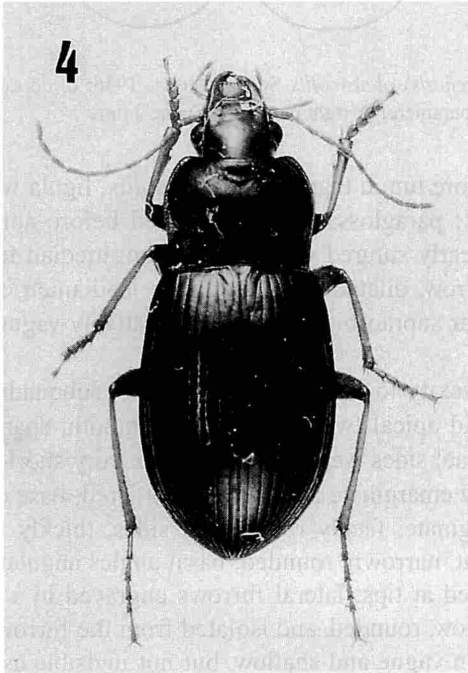
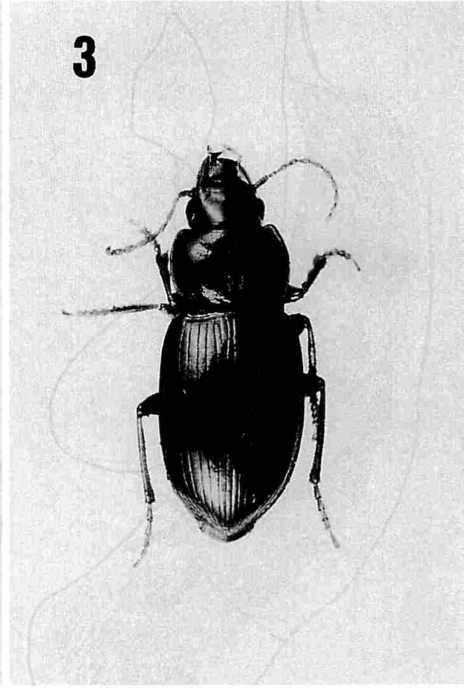
Body similar in shape to that of *T. (A.) obtusicollis* SCHAUBERGER, 1936, oblong, black, shiny, but somewhat opaque on elytra; palpi light brown, 3rd to 11th antennal segments and tarsi dark reddish brown, the remaining segments blackish.

Head wide, 0.69–0.74 times as wide as the pronotal width, rather well convex, sparsely punctulate, with wide interocular space 0.76–0.78 times as wide as the width of head; labrum widely rounded and weakly produced at apical corners; clypeus not or weakly depressed in apical third, shallowly emarginate at apex; clypeal suture fine, obscurer than in *T. obtusicollis*, sometimes reduced at sides; frontal impressions also obscure, engraved like fovea; eyes weakly convex; temples short, a little less than two-fifths of eye length; genuine ventral margin of eye widely separated from buccal fissure; mandibles robust, left mandible vertically truncate at apex, weakly produced at terebral tooth and sharply and minutely so at retinacular tooth, right one sharpened at apex and triangularly produced only at retinacular tooth, with indistinct terebral tooth; antennae short, not reaching pronotal base, 3rd segment as long as the 4th and a half

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Figs. 2–5. Habitus of *Trichotichnus* spp. — 2, *Trichotichnus (Amaroschesis) curticornis* N. ITO, sp. nov.; 3, *T. (A.) satoi* N. ITO, sp. nov.; 4, *T. (A.) calathiformis* N. ITO, sp. nov.; 5, *T. (s. str.) gracilitibialis* N. ITO, sp. nov.





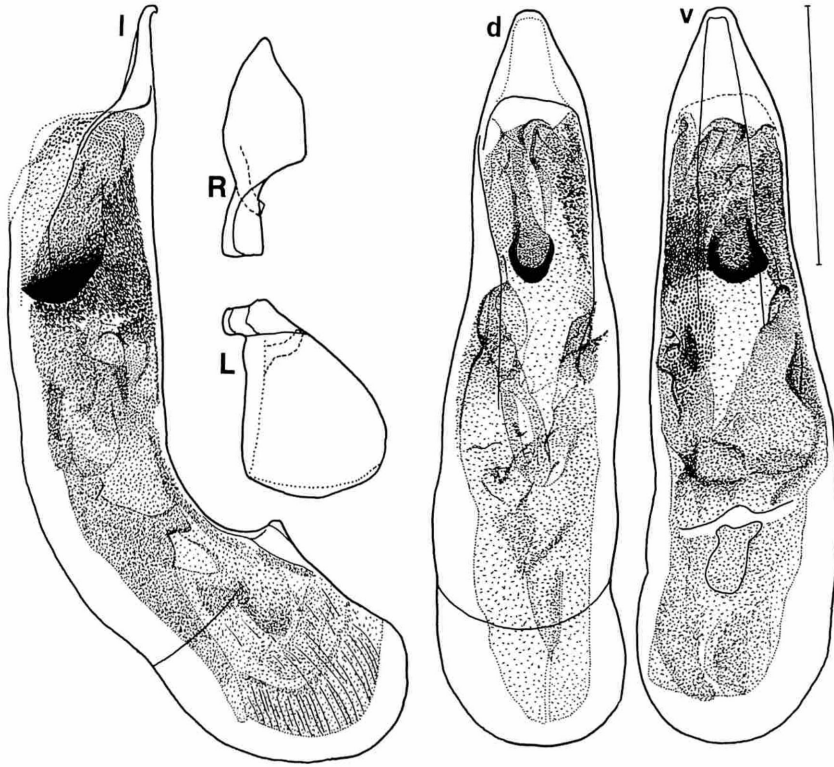


Fig. 6. Male genitalia of *Trichotichnus (Amaroschesis) obtusicollis* SCHAUBERGER, 1936; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

longer than the 2nd; labial palpi a little more tumid than in *T. obtusicollis*; ligula wide, straightly dilated distad, truncate at apex; paraglossae narrow, curved before apices, not prolonged beyond ligula; mentum clearly sutured with submentum, median tooth relatively small and narrow, epilobes narrow, dilated apicad; surface isodiametrically microsculptured, clear on clypeus and near supraorbital pores, and relatively vague on frons and vertex.

Pronotum similar in shape and convexity to that of *T. obtusicollis*, subquadrate, widely well convex, widest a little behind apical two-fifths, mostly smooth, sparsely punctate in lateral furrows and basal foveae; sides weakly arcuate, with very short and shallow sinus before base; apex uniformly emarginate and entirely bordered; base one-eighth wider than apex, shallowly emarginate, feebly rounded at sides, thickly bordered throughout; apical angles protrudent, narrowly rounded; basal angles angulate, a little larger than rectangle, slightly toothed at tips; lateral furrows engraved in a line lengthwise; basal foveae each small, shallow, rounded, and isolated from the furrow by wide swelling; front transverse impression vague and shallow, but not invisible as the hind one; median line reaching both apex and base, or sometimes reduced near apex;

microsculpture clear, visible as isodiametric meshes.

Elytra oblong-oval, short, about two-fifths longer than wide (1.38–1.43 in ratio), steeply declivous laterad and apicad, not punctate; sides gently rounded in humeri, weakly curved in middle, rather strongly arcuate in apical third, with very shallow sub-apical sinus; apices widely rounded, narrowly separated from each other, angulate at sutural angles; bases shallowly emarginate, very obtuse and angulate at humeral angles; striae fine and shallow throughout, finely crenulate, scutellar striole short; intervals flat even in lateral and apical portions, dorsal pore on 3rd interval situated at a little before apical third; marginal series continuous or narrowly interrupted medially, composed of 19–21 umbilicate pores; microsculpture observed as clear transverse meshes. Hind wings fully reduced, one-seventh of the elytral length.

Ventral surface mostly impunctate, with several obscure punctures on lateral portions of metasternum and metepisterna, sparsely covered with short pubescence medially on pro- and metasterna and 2nd and 3rd abdominal sternites; metepisternum one-fifth shorter than wide; 6th abdominal sternite in both sexes bisetose on each side, feebly arcuate in ♂ and widely so in ♀ at distal margin.

Hind femur bisetose along hind margin; fore tibia relatively dilated distad, truncate at apex, not sulcate on dorsal surface, trispinous apico-externally; tarsi rather short, 1st segment of mid tarsus in ♂ biseriately squamose in apical half, hind tarsus about four-fifths in ♂ and seven-tenths in ♀ as long as the width of head, 1st segment three-fifths as long as the 2nd and 3rd combined together, 3rd about one-fourth shorter than the 2nd and a half longer than the 4th, claw segment trisetose ventrally at each side.

Aedeagus (Fig. 7) not robust, clearly curved behind basal bulb, thence almost straightly prolonged towards apex, which is thinned distad and ventro-obliquely at tip; apical orifice widely open, inner sac without armature; apical lobe elongate-triangular, rounded at distal margin; ventral surface bordered at sides. Stylus (Fig. 11–B) short, stout, weakly curved outwards, bearing a spine at middle of each external margin and a short seta near apex; basal segment trisetose apico-externally; valvifer bisetose at apex.

Length: 8.1–8.9 mm. Width: 3.4–3.6 mm.

Holotype: ♂, Mt. Wahui Shan, 3,940 m, Dichi Shan Mts., Jiulong Xian, western Sichuan, China, 29–IX–1996, S.-I. UÉNO leg. Paratypes: 3 ♂♂, same data as the holotype; 1 ♂, same locality as the holotype, 28–IX–1996, M. SATÔ leg.; 2 ♂♂, 1 ♀, Mt. Wahui Shan, 3,940 m, Dichi Shan Mts., Jiulong Xian, W. Sichuan, China, 28–IX–1996, S. NOMURA leg. (preserved in NSMT, NWU and NI).

As compared with *T. (A.) obtusicollis*, this new species is smaller in the size of body, with the basal angles of pronotum angulate instead of being rounded, and the humeral angles of elytra not rounded.

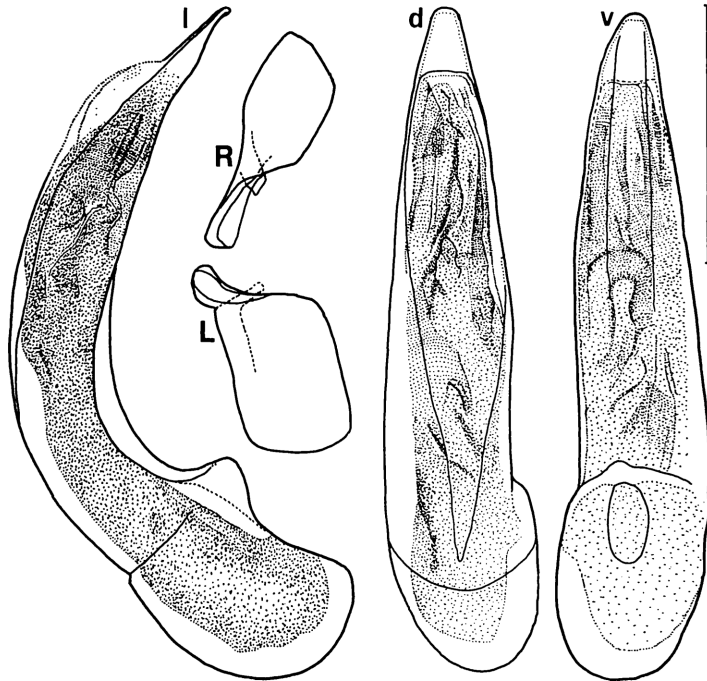


Fig. 7. Male genitalia of *Trichotichnus (Amaroschesis) curticornis* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

***Trichotichnus (Amaroschesis) satoi* N. ITO, sp. nov.**

(Figs. 3, 8 and 11-C)

Body oblong, thick, black, shiny, but the elytra are rather opaque due to clear microsculpture, without iridescent lustre; palpi and antennae light brown, mandibles dark reddish brown, tibiae and tarsi brown, femora blackish brown.

Head convex, not punctate, transversely rugose on frons, moderate in width, 0.64–0.68 times as wide as the pronotal width, with wide interocular space three-fourths the width of head; labrum weakly narrowed forwards, roundly produced at apical corners; clypeus thick, transversely depressed in apical third, with shallowly emarginate apex; clypeal suture obscurely carved or obliterated; frontal impressions shallowly engraved in apical half, reduced near supraorbital grooves; eyes long and not convex; temples thin and weakly sloped; genuine ventral margin of eye widely isolated from buccal fissure; antennae slender, short, reaching basal tenth of elytra, 3rd segment pubescent in apical half, slightly longer than the 4th (1.04–1.12 in ratio) and two-thirds longer than the 2nd; mandibles gently curved before apices, which are blunt, terebral tooth of left mandible small and rounded and that of right one indistinct and widely arcuate, retinacular tooth of left one widely and triangularly protrudent and that of right

one narrowly triangular; ligula weakly and straightly expanded distad, truncate at apex; paraglossae narrow, prolonged forwards beyond ligula; epilobes of mentum narrow, weakly widened apicad; microsculpture relatively clear, composed of isodiametric meshes.

Pronotum subquadrate, gently rounded at sides, which are hardly sinuate before base, widest a little before middle, about two-fifths wider than long, steeply declivous apico-laterad; surface mostly smooth on disc, sparsely and moderately punctate in lateral furrows and basal foveae; apex moderately emarginate, not interrupted at border; base shallowly emarginate, subarcuately oblique at sides, with entire border; apical angles produced, narrowly rounded; basal angles angulate, a little larger than rectangle, and with blunt tooth at each tip; lateral furrows very narrow in apical third, thence gradually widened behind, and linked with basal foveae; basal foveae shallow, transverse, and longitudinally grooved in the middle; front transverse impression rather clear, hind transverse one very shallow; median line fine but clear, reduced near apex and base; microsculpture clearly detectable, consisting of mixture of square and isodiametric meshes.

Elytra elliptical, about a half longer than wide (1.46–1.50 in ratio), abruptly sloping towards sides and apices, not or very sparsely punctate; sides gently arcuate at humeri, hardly sinuate before apices; apices separately and narrowly rounded, blunt at sutural angles; bases emarginate, subrectangularly meeting with lateral borders; striae fine, shallow, gradually becoming a little deeper laterad and apicad, clearly crenulate, scutellar striole short; intervals flat, dorsal pore of 3rd interval situated near apical two-fifths and adjoining 2nd stria; marginal series widely interrupted in middle, anterior group composed of 7–8 umbilicate pores, and posterior group of 7–9 pores; microsculpture observable as transverse meshes. Hind wings fully reduced, a little shorter than one-fifth the elytral length.

Ventral surface impunctate, furnished with short pubescence medially on pro- and metasterna and on 2nd and 3rd sternites; metepisternum short, 0.71–0.76 times as long as wide; apical margin of 6th abdominal sternite in ♂ bisetose and subtruncate at tip, and in ♀ quadrisetose and widely rounded.

Legs short; hind femur bisetose along hind margin; fore tibia weakly dilated distad, not incised in external half of apex, apico-externally armed with three short spines; mid tarsus in ♂ with biseriate adhesive squamae at apex, hind tarsus 0.94–0.96 times in ♂ and 0.74–0.79 times in ♀ as long as the width of head, 1st segment short, about three-fourths as long as the 2nd and 3rd taken together, 2nd three-tenths longer than the 3rd and about twice the 4th, claw segment trisetose along each ventral margin.

Aedeagus (Fig. 8) gently arcuate, gradually tapered distad, sharply reflexed dorsad at apex, with large basal bulb; apical orifice narrow, widely open only near apex, inner sac without sclerite; apical lobe subsquare, truncate at tip; ventral surface bordered at sides. Stylus (Fig. 11–C) robust, with a very minute spine only at dorso-external margin; basal segment bearing a short seta at apico-external corner; valvifer bisetose at apex.

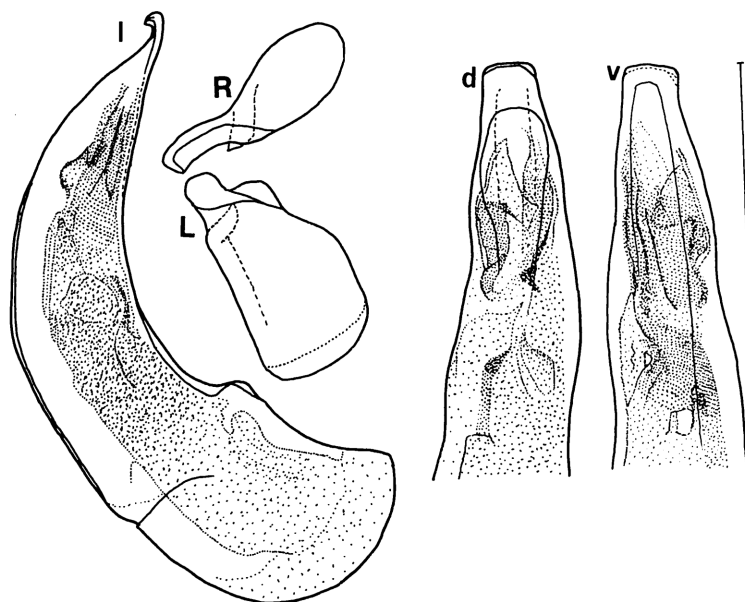


Fig. 8. Male genitalia of *Trichotichnus (Amaroschesis) satoi* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

Length: 7.6–9.0 mm. Width: 3.1–3.8 mm.

Holotype: ♂, Waze, 3,410 m, Kangding Xian, western Sichuan, China, 27-IX-1996, M. SATÔ leg. Paratypes: 13♂♂, 2♀♀, same data as the holotype; 3♂♂, Mt. Wahui Shan, 3,930 m, Dichi Shan Mts., Jiulong Xian, western Sichuan, China, 28-IX-1996, M. SATÔ leg.; 2♂♂, ditto, S.-I. UÉNO & L. ZHAO leg. (preserved in NSMT, NWU and NI).

This new species is similar to *T. (A.) obtusicollis*, but the dorsal microsculpture is clearer, the apical angles of pronotum are more narrowly arcuate and the basal ones are not rounded, and the humeral angles of elytra are angulate instead of being blunt.

The new species is also allied to the previous new species, but is different from the latter in having the baso-lateral parts of pronotum not swollen, the hind tarsi a little longer, and the apical margin of the 6th abdominal sternite not quadrisetose.

***Trichotichnus (Amaroschesis) calathiformis* N. ITO, sp. nov.**

(Figs. 4, 9 and 11-D)

Body rather flattened, resembling in shape those of the species of the genus *Calathus* BONELLI, black to dark reddish brown, shiny, iridescent on elytra; palpi, antennae and legs light reddish to yellowish brown, mandibles and labrum dark brown to reddish brown.

Head relatively small, less than two-thirds the width of pronotum (0.63–0.65 in

ratio), minutely and very sparsely punctate, gently convex, with interocular space wide and about seven-tenths the width of head including eyes; labrum weakly narrowed apicad, emarginate at apex; clypeus almost flat or weakly and transversely swollen in basal two-thirds, with subtruncate apex; clypeal suture fine and shallow throughout; frontal impressions vague, engraved only in apical halves, reduced before eyes; temples not or somewhat swollen, obtusely meeting with neck constriction, about one-fourth the eye length; genuine ventral margin of eyes widely separated from buccal fissure; mandibles more or less shaped at apices, terebral tooth of the left mandible small and rounded and of the right one not produced, retinacular tooth of left one small and triangular and of the right one large and arcuate; antennae slender, comparatively longer than in ordinary species of the subgenus, 3rd segment as long as the 4th and five-eighths longer than the 2nd; labial palpi slender, 3rd segment as long as the 2nd; ligula wide, divergent distad, truncate at apex, widely separated from paraglossae, which are slightly prolonged beyond it; mentum clearly sutured with submentum, epilobes narrow and parallel-sided, median tooth rounded; microsculpture relatively clear, composed of mixtures of isodiametric and square meshes.

Pronotum subtrapezoidal, widest a little before apical two-fifths, about two-fifths wider than long (1.42–1.45 in ratio), almost flattened on disc, gently declivous apico-laterad, smooth on disc, rather coarsely and sparsely punctate in lateral furrows and basal foveae and finely so in apical portion; sides moderately and roundedly convergent apicad and weakly so basad from the widest point, widely sinuate before base; apex deeply emarginate; base much wider than apex, 1.40–1.46 times as wide as apex, shallowly emarginate; apical angles well produced and narrowly rounded; basal angles triangularly produced latero-posteriad, smaller than rectangle; lateral furrows narrow in front, gradually widened behind from near middle; basal foveae each shallow, isolated from the furrow by weak swelling; front transverse impression obscure to rather clear; hind transverse one very shallow; median line fine but clear, obsolete before apex and base; microsculpture finely and clearly impressed, observable as mixtures of isodiametric, square and transverse meshes.

Elytra oval, widest at middle, 1.43–1.50 times as long as wide, uniformly and weakly elevated, not or very sparsely punctulate; sides weakly arcuate at humeri, with very shallow subapical sinus; apices rounded and rather widely separated from each other; bases not emarginate, weakly oblique latero-anteriad, obtusely and angularly meeting with lateral borders; striae fine, shallow on disc, slightly deepened laterally and apically, finely and clearly crenulate, scutellar striole long, though rather short in several examples; intervals not convex, dorsal pore of 3rd interval situated between middle and apical two-thirds and adjoining 2nd stria; marginal series continuous, composed of 21–27 umbilicate pores; microsculpture detectable as very vague transverse lines. Hind wings reduced, one-fifth of the elytral length.

Ventral surface mostly smooth, minutely and sparsely punctate on prosternum, pro- and metepisterna, and metasternum, with sparse and very short pubescence medially on prosternum and 2nd and 3rd abdominal sternites; metepisternum subsquare,

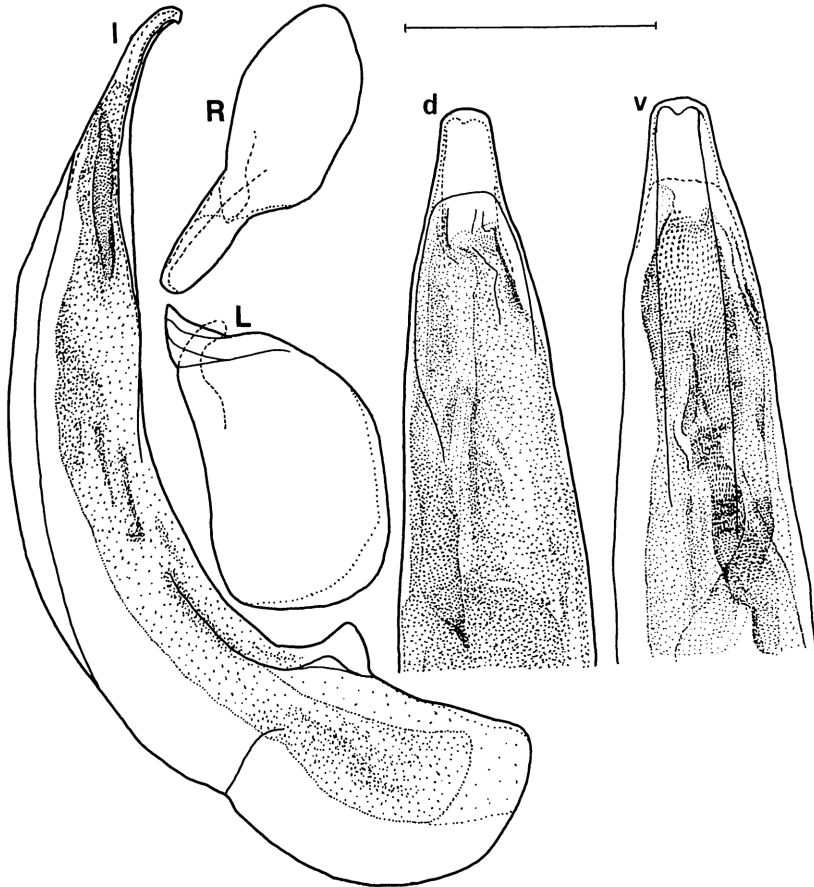


Fig. 9. Male genitalia of *Trichotichnus (Amaroschesis) calathiformis* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

one-ninth shorter than wide; 6th abdominal sternite unisetose in ♂ and bisetose in ♀ on each side, truncate in ♂ and narrowly rounded and produced in ♀ at apex.

Legs rather long than usual; mid coxa densely setose along outer margin; hind femur bisetose along hind margin; fore tibia not incised at external margin, bi- or trisetose along apico-external margin, dorsally without sulcus; hind tarsus one-fifth in ♂ longer than and in ♀ as long as the width of head, 1st segment about 0.7 times as long as the 2nd and 3rd taken together, 3rd three-tenths shorter than the 2nd and two-sevenths longer than the 4th, claw segment trisetose along each ventral margin.

Aedeagus (Fig. 9) robust, clearly arcuate, gradually thinned distad; apex directed ventrad, truncate at tip, with a slight hook; apical lobe trapezoidal, weakly arcuate at tip; apical orifice wide, inner sac without any armature; ventral surface bordered at sides, weakly depressed. Stylus (Fig. 11-D) slender, weakly curved, with two short



setae along each external margin.

Length: 10.6–11.6 mm. Width: 4.5–4.9 mm.

Holotype: ♂, Dafengding, 2,320 m, Daliang Shan Mts., Wahei Xiang, Meigu Xian, S. Sichuan, China, 6-X-1997, S.-I. UÉNO leg. Paratypes: 5 ♂♂, 7 ♀♀, same data as the holotype (preserved in NSMT and NI).

This new species is related to *T. (A.) notabilangulus* N. ITO, 1998, but is easily distinguishable from the latter by the legs lighter in color, the pronotum much wider at the base, the elytra iridescent, and so on.

This new species is peculiar in having the stylus bisetose along each external margin. In the Sichuanese species of the genus *Trichotichnus*, such usually stable characters as the number of setae on the pronotum, the presence of elytral dorsal pore and the number of the external marginal setae of the stylus vary rather frequently. Similar phenomenon is also observed in the genus *Chydaeus*, and was repeatedly noticed by UÉNO in the subfamily Trechinae. Such an instability may be attributable to the oldness of the fauna, and suggests flexibility to promote intensive speciation in the region.

*Trichotichnus* (s. str.) *gracilitibialis* N. ITO, sp. nov.

(Figs. 5, 10 and 11–E)

Body oblong, slightly brownish black to black, shiny, with iridescent lustre on elytra; palpi, antennae and legs light brown, labrum and mandibles dark reddish brown, blackish brown to black.

Head large, 0.69–0.73 times as wide as pronotal width, weakly convex, somewhat coarsely and rather densely punctate, with narrow interocular space about seven-tenths the width of head; labrum subsquare, shallowly emarginate at apex; clypeus triangularly protrudent at apical corners, straight between them, widely bordered along apex, with short longitudinal rugosities behind the border; clypeal suture clear and rather deep (shallow in one example); front transverse impressions arcuately divergent, gradually becoming shallower behind, though not reduced near supraorbital grooves; eyes large, rather prominent; temples short, one-seventh the eye length; genuine ventral margin of eye narrowly separated from buccal fissure; mandibles stout, gently curved inwards, terebral tooth of left mandible weakly produced and subtruncate at apex, and that of right one indistinct, retinacular tooth of left one roundly protrudent and that of right one narrowly and rather strongly so; antennae slender, relatively long, a little surpassing basal tenth of elytra, 3rd segment hardly dilated distad, pubescent in apical three-fifths, slightly longer than the 4th and twice the 2nd; labial and maxillary palpi slim; ligula wide, expanded distad before apex, which is hardly bisinuate; paraglossae narrow, separated in the expanded portion, not prolonged beyond ligula; mentum transverse, epilobes widened apicad, median tooth low and wide; microsculpture partly and vaguely visible as transverse meshes.

Pronotum not transverse, 1.35–1.38 times as wide as long, rather strongly narrowed behind, widest at apical two-fifths, well convex; sides clearly arcuate apicad and

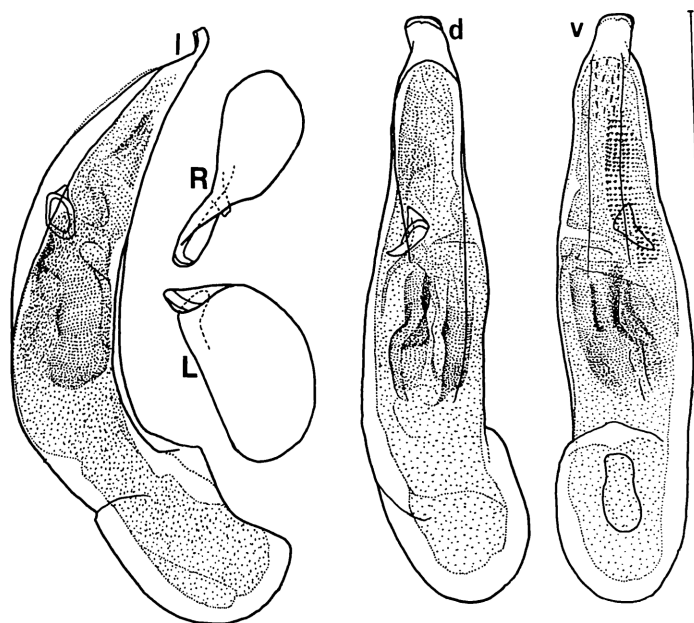


Fig. 10. Male genitalia of *Trichotichnus* (s. str.) *gracilitibialis* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect; L, left paramere; R, right paramere. Scale: 1 mm.

straightly oblique basad from the widest point, not or hardly sinuate before base; apex straight or slightly emarginate, brokenly bordered in the middle; base as wide as apex, truncate, thickly bordered throughout; apical angles not protrudent, narrowly rounded; basal angles angulate, relatively larger than rectangle (about  $150^\circ$ ), with very minute tooth at each tip; lateral furrows narrow, gradually widened backwards, merging into basal foveae, which are large, shallow and ill-defined; front and hind transverse impressions obscure; median line fine, clear (somewhat vague in one example), reaching both apex and base; dorsal punctures fine and sparse centrally on disc, becoming denser and coarser from there towards surrounding areas, particularly coarse and partly confluent in middle of basal foveae; microsculpture largely invisible, hardly detectable only near punctures of basal foveae.

Elytra narrowly subelliptical, a half longer than wide, gently convex, very sparsely and minutely punctate; sides clearly arcuate at humeri, subparallel in the middle, more or less deeply sinuate before apices, which are rounded at tips, narrowly separated from each other and with blunt sutural angles; bases hardly emarginate and very obtusely and angulately meeting with lateral borders; striae deep, wide, and finely crenulate, scutellar striole moderate in length; intervals weakly convex on disc, gradually becoming more convex laterad, dorsal pore of 3rd interval situated near the middle and adjoining 2nd stria; marginal series continuous, but the spaces are wide between umbilicate pores adjoining each other in the middle, composed of 20–22 pores; mi-

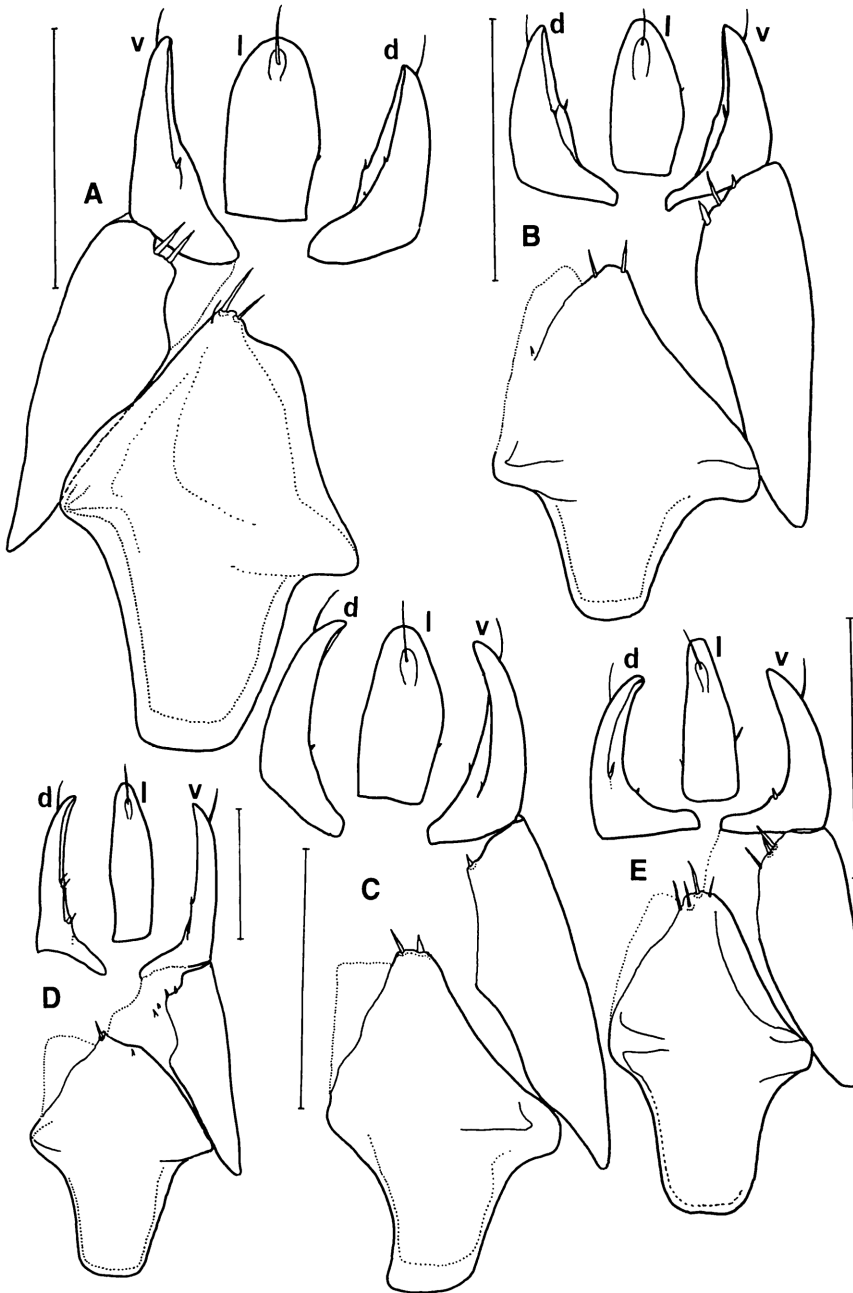


Fig. 11. Female genitalia of *Trichotichus* spp. — A, *T. (A.) obtusicollis* SCHAUBERGER; B, *T. (A.) curticornis* N. ITO, sp. nov.; C, *T. (A.) satoi* N. ITO, sp. nov.; D, *T. (A.) calathiformis* N. ITO, sp. nov.; E, *T. (s. str.) gracilitibialis* N. ITO, sp. nov.; d, dorsal aspect; l, lateral aspect; v, ventral aspect. Scale: 1 mm.

crosculpture vague, consisting of transverse lines. Hind wings fully developed.

Ventral surface rather densely punctate on lateral portions of pro- and metasterna and of 2nd and 3rd abdominal sternites, and pro-, meso- and metepisterna, pubescence on the middle of 2nd and 3rd abdominal sternites rather dense; metepisternum strongly narrowed behind, one-fourth as long as wide; apical margin of 6th abdominal sternite in ♂ bisetose and feebly notched at tip and in ♀ quadrisetose and widely rounded.

Legs long; hind femur quadrisetose (rarely trisetose) along hind margin; fore tibia slender, not incised at external half of apex, trispinous along apico-external margin, clearly sulcate on dorsal surface, terminal spur slim and lanceolate; mid tarsus in ♂ bearing biseriate ventral adhesive hairs only on 3rd and 4th segments; hind tarsus in ♂ almost as long as and in ♀ about one-tenth shorter than the width of head, 1st segment three-eighths shorter than the 2nd and 3rd taken together, 3rd three-fourths as long as 2nd and a half longer than the 4th, claw segment tri- or quadrisetose along ventral margin.

Aedeagus (Fig. 10) thick, relatively arcuate, reflexed dorsad at apex; apical lobe quadrate, directed to the right, truncate at tip; apical orifice wide, inner sac armed with a wide and short conical sclerite at the middle. Stylus (Fig. 11-E) more or less clearly curved outwards, with a minute spine basally at each external margin; basal segment trisetose at external apex; valvifer quadrisetose at apex, one of the setae being short and fine.

Length: 9.0–9.8 mm. Width: 3.6–4.2 mm.

Holotype: ♂, Fengtonzhai, alt. 1,500 m, Yanjing Xiang, Baoxing Xian, W. Sichuan, SW. China, 1–X–1997, S.-I. UENO leg. Paratypes: 2♂♂, 2♀♀, same locality and collector as the holotype, 2–X–1997 (preserved in NSMT and NI).

This new species belongs to the *longitarsis* group *sensu* HABU and is peculiar in having the ♂ mid tarsus devoid of adhesive hairs on the ventral side of the 1st and 2nd segments. The species is similar to *T. (s. str.) longitarsis* MORAWITZ, 1864, but the head is more densely and coarsely punctate, the pronotum is not reddish, the 2nd segment of the mid tarsus does not bear adhesive hairs, and so on.

## 要 約

伊藤 昇：中国四川省産ツヤゴモクムシ属の数種について。——中国南西部の四川省において、上野俊一博士、佐藤正孝博士、野村周平博士などが採集された多数のゴモクムシ族の標本には、いくつかの未記載種が含まれている。本稿では、それらの一部を、*Trichotichnus (Amaroschesis) curticornis*, *T. (A.) satoi*, *T. (A.) calathiformis* および *T. (s. str.) gracilitibialis* と命名して記載した。*T. (A.) calathiformis* は、雌交尾器の外縁に通常は1本ずつある棘が数本あり、きわめて特異である。同時に、最初の2種に類縁が近いと考えられる、*T. (A.) obtusicollis* SCHAU- BERGER を、基準標本に基づいて再記載した。本研究の一部は、文部省科学研究費補助金（海外学術研究）によるものである。

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## Occurrence of a *Chydaeus* on Awaji Island (Coleoptera, Carabidae)

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The harpalines of the genus *Chydaeus* CHAUDOIR usually occur in rather high mountaineous areas more than 900 m in altitude. Through the courtesy of Mr. Yoshihide OKUDA, Minoo and Mr. Masato MORI, Takarazuka, I was able to examine several specimens of the genus taken on Awaji Island of Hyōgo Prefecture. They were collected in low places 150–300 m in altitude.

*Specimens examined.* 1♀, Mt. Yuzuriha, Sumoto, Awaji Is., 2–X–1999, M. MORI leg.; 1♂, Aiyagawa Valley, Sumoto, Awaji Is., 29–IV–1999, Y. OKUDA leg.

According to Mr. OKUDA, his specimen was collected with eyeless trechine beetles. As compared with *Chydaeus shibatai* HABU from the Kii Peninsula and *C. shikokuensis* HABU from Mt. Ishizuchi (including one paratype) and Omogo, Shikoku, the Awaji specimens are more