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THE GENUS *CHILOCORELLUS* MIYATAKE (COLEOPTERA: COCCINELLIDAE) FROM CHINA

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Abstract.— *Chilocorellus* Miyatake is presently recorded from China. Three new species from this genus are described and illustrated in detail: *C. quadrimaculatus* **sp. nov.**, *C. protuberans* **sp. nov.**, *C. tenuous* **sp. nov.** A diagnosis of the genus and a key to the known species are also given.



Key words.— Coleoptera, Coccinellidae, *Chilocorellus*, new species, China.

INTRODUCTION

The genus *Chilocorellus* (Coccinellidae: Sticholotidinae) was erected by Miyatake (1994), with *C. luzonicus* from the Philippines as the type species. Specimens of *Chilocorellus* are rarely collected and our knowledge about the type species is limited to the original description (Miyatake 1994).

The genus *Chilocorellus* was monotypic until recently. In this paper three new species, collected by the authors from China are described. A diagnosis of the genus and a key to the known species are also given.

MATERIALS AND METHODS

The specimens examined were collected from China. All materials were preserved in 85% ethanol. External morphology was observed with a dissecting stereoscope (Zeiss Stemi 2000-cs). The measurements made with an ocular micrometer are as follows:

TL – Length from apical margin of clypeus to apex of elytra,

TW – width across both elytra at widest part,

TH – height at highest elytral part,

HW – head width at widest part,

PL – pronotal length at longest part,

PW – pronotal width at widest part,

EL – elytral length at longest part,

EW – elytral width across both elytra at widest part.

Male and female genitalia were dissected, cleared in 10% solution of NaOH by boiling for several minutes, and examined with an Olympus BX51 compound microscope.

Images were photographed with digital cameras (Qimagin 5.0 RTV and Coolsnap-Procf & CRI Micro* Color), connected to the dissecting microscope. The software Image-Pro Plus 5.1 was used to capture images from both cameras, and photos were cleaned up and laid out in plates with Adobe Photoshop CS 8.0.

Type specimens designated in the present paper are deposited at the Department of Entomology, South China Agriculture University (SCAU), Guangzhou, China.

TAXONOMY

Chilocorellus Miyatake, 1994

Chilocorellus Miyatake, 1994: 248. Type species: *Chilocorellus luzonicus* Miyatake, 1994.

Diagnosis. This genus is close to *Synonychomorpha* Miyatake, 1994 in morphological characters (Miyatake 1994, Poorani 2003), but it can be distinguished from the latter as follows: body moderately convex, lateral margins of elytra very broadly and entirely explanate (Figs 9–11), prosternal process very narrow (Fig. 1). In *Synonychomorpha*, body is strongly convex, lateral margins of elytra are moderately broad and distinctly narrower than those in *Chilcorellus* and prosternal process is wide, quadrate.

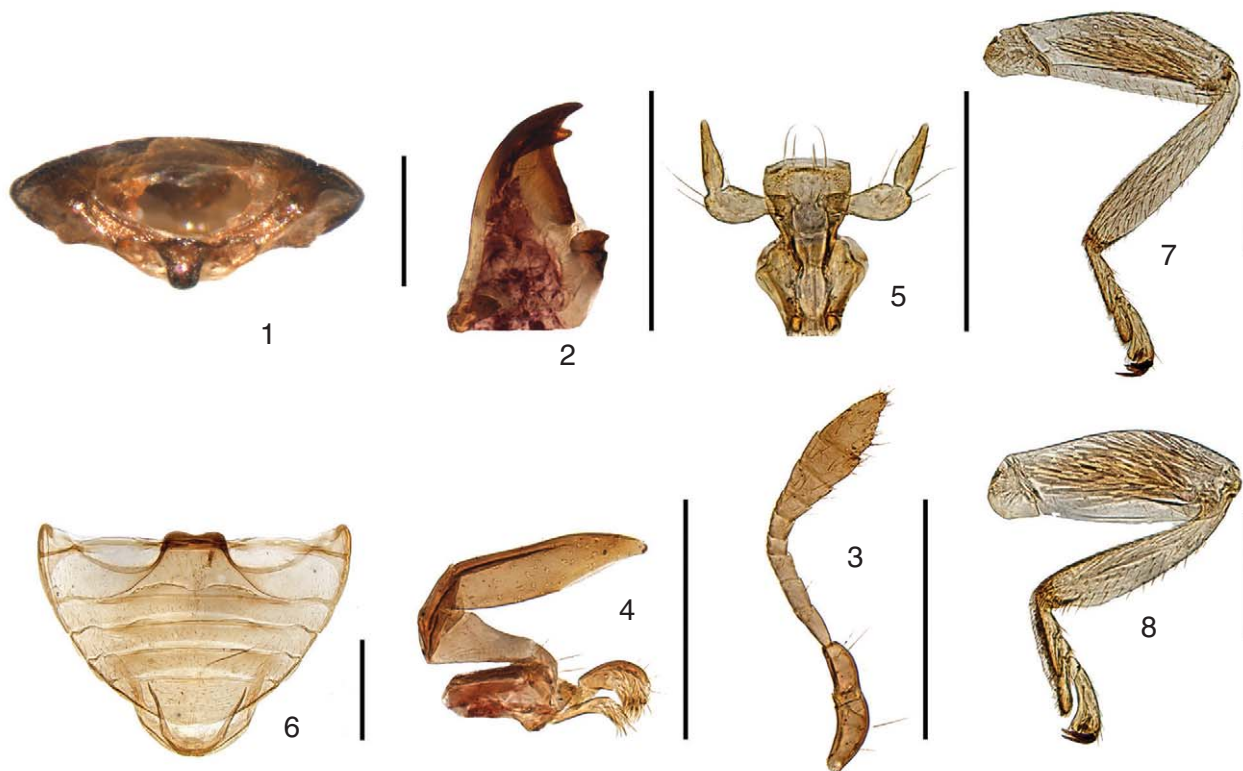
This genus is also similar to *Sticholotis* Crotch, 1874 (Sasaji 1971, Hoàng 1982, Miyatake 1994, Ślipiński 2004), but it can be distinguished from the latter as follows: frons distinctly emarginate around antennal insertions (Fig. 11), lateral margins of elytra very broadly and entirely explanate (Fig. 9), prosternal process very narrow. In *Sticholotis*, frons is slightly emarginate around antennal insertions, lateral margins of elytra are moderately explanate, prosternal process is broad, quadrate or subpentagonal.

Description. Body rounded to broadly oval, moderately convex, subhemispherical; dorsal surface glabrous (Figs 9–11). Head relatively small; frons broad, about one-half as wide as head, distinctly emarginate around antennal insertions; clypeal margin slightly

emarginate; eyes small and rather coarsely faceted distinctly notched near antennal insertion; antennae 11-segmented (Fig. 3), elongate, 1st antennomere slightly clavate, curved and constricted near the base, 2nd a little shorter and narrower than 1st, 3rd to 5th distinctly longer than wide, 6th to 8th much shorter, slightly dilated, 9th to 11th narrowly dilated, forming a fusiform club; terminal maxillary palpomere slender and strongly obliquely truncate, sharply pointed at apex (Fig. 4). Labial palps narrow, rounded in front, obliquely truncate at apical half (Fig. 5).

Pronotum moderately transverse, lateral margins arcuate, posterior angles obtusely rounded. Scutellum very small, roughly triangular. Elytra distinctly wider at base than pronotum, strongly convex; humeral calli rather prominent; lateral margins broadly and entirely explanate; humeral angles obtuse but not rounded; dorsal surface glabrous.

Prosternal intercoxal process narrow, slightly dilated anteriorly (Fig. 1). Mesoventrite relatively narrow between coxae, quadrate, a little wider than long. Metaventrite moderately elevated with a fine median furrow. Elytral epipleuron very broad and gradually narrower behind the level of hind coxae, strongly descending externally so as to entirely obscure the retracted legs when viewed from side, without foveae.



Figures 1–8. *Chilcorellus quadrimaculatus* sp. nov.: (1) Prothorax, ventral; (2) mandible; (3) antenna; (4) maxilla; (5) labium; (6) abdomen; (7) front leg; (8) hind leg. Scale bars: Fig. 1, 6 = 0.5 mm; 2–5, 7–8 = 0.3 mm.

Abdomen with five ventrites (Fig. 6); postcoxal lines incomplete. Legs slender and long, not expanding beyond the external boundary of the body (Figs 7–8); tarsi 4-segmented, claws simple, slender, simply curved and dilated into a broad tooth at basal half.

Distribution. China, Philippines.

Key to the species of *Chilocorellus*

1. Elytra yellow, with black spots 2
- Elytra uniformly yellow, without other external markings 3
2. Elytra yellow, with longitudinal oval spot. Distributed in Philippines *luzonicus* Miyatake
- Elytra yellow, with four large spots. Distributed in China *quadrifasciatus* sp. nov.
3. Apex of penis curved, with many small teeth. Inner margin of penis guide of tegmen distinctly protuberant at basal $\frac{2}{5}$ in lateral view. Parameres distinctly longer than penis guide. Distributed in China *protuberans* sp. nov.
- Apex of penis simple, with many large teeth. Penis guide of tegmen simple and tenuous. Parameres slightly shorter than penis guide. Distributed in China *tenuous* sp. nov.

Chilocorellus quadrifasciatus sp. nov.

(Figs 1–11, 18–22)

Etymology. The specific epithet refers to the elytra with four black spots.

Diagnosis. This is a very distinctive species having 4 large black spots on elytra (Figs 9–11). The male and female genitalia are also diagnostic (Figs 18–22).

Description. TL: 2.38–2.67 mm, TW: 2.25–2.42 mm, TH: 1.29–1.33 mm, TL/TW: 1.06–1.10; PL/PW: 0.43–0.44; EL/EW: 0.90–0.91.

Head yellow, with eyes silver gray. Pronotum and scutellum yellow. Elytra yellow, each with 2 large black round spots, placed on humeral callus at $\frac{3}{4}$ elytral length (Figs 9–10). Underside yellow, except metaventricle yellowish brown.

Body small, rounded oval, moderately convex and glabrous. Head comparatively small, about $0.33\times$ of elytral width (HW/EW = 1:3.10), punctures on frons moderately large, separated by about 0.2–0.5 times a diameter, with sparse, thin silvery white pubescence; eyes small and almost oval, rather coarsely faceted, the widest interocular distance about $0.57\times$ of head width (Fig. 11). Pronotum about $0.61\times$ of elytral width (PW/EW = 1:1.63), pronotal punctures fine, smaller than those on head, separated by about 0.3–0.8 times a diameter. Surface of elytra with irregular punctures, larger than those on head, separated by about 0.2–0.3

times a diameter. Surface of prosternum slightly shagreened, with inconspicuous punctures and sparse, and long hairs. Meso- and metaventricle with moderately large punctures, separated by about 0.5–2.0 times a diameter, with short setae in punctures.

Male genitalia: Penis very slender, extremely long, with a large penis capsule; apex of penis simple, with many large teeth (Figs 18–19); penis guide of tegmen arcuate in lateral view, widest at base, apex pointed and curved (Fig. 20); parameres very slender, slightly longer than penis guide; penis guide slender in ventral view, almost parallel at basal $\frac{3}{4}$, apex gladiate in form, pointed (Fig. 21).

Female genitalia: coxites stout and triangular, about 2.4 times as long as wide, tapering to blunt apices, outer and inner margin almost straight, each with several long terminal setae (Fig. 22); spermatheca sclerotised.

Types. Holotype. 1♂, Yunnan: Tongbiguan, Yingjiang, 1000 m, 23.IX.2008, Wang XM Leg. Paratype. Yunnan: 2♂♂, 4♀♀, same data as holotype; 1♂, 3♀♀, Tongbiguan, Yingjiang, 1000m, 4. V. 2008, Wang XM Leg.

Distribution. China (Yunnan).

Chilocorellus protuberans sp. nov.

(Figs 12–14, 23–27)

Etymology. The specific epithet refers to the distinctly protuberant inner margin of penis guide of male genitalia in lateral view.

Diagnosis. This species is similar to *C. luzonicus* in general appearance, but it is easily distinguished from the latter by the elytra without any spots, while the elytra of *C. luzonicus* have longitudinal oval spots.

This species is also similar to *Synonychimorpha immaculata* Poorani, 2003 in the color pattern of body which have dorsal and ventral sides uniformly yellow and without other external spots, but it can be easily distinguished by genus characters.

Description. TL: 2.47–2.60 mm, TW: 2.50–2.55 mm, TH: 1.35–1.38 mm, TL/TW: 1.06–1.10; PL/PW: 0.46–0.47; EL/EW: 0.89–0.91.

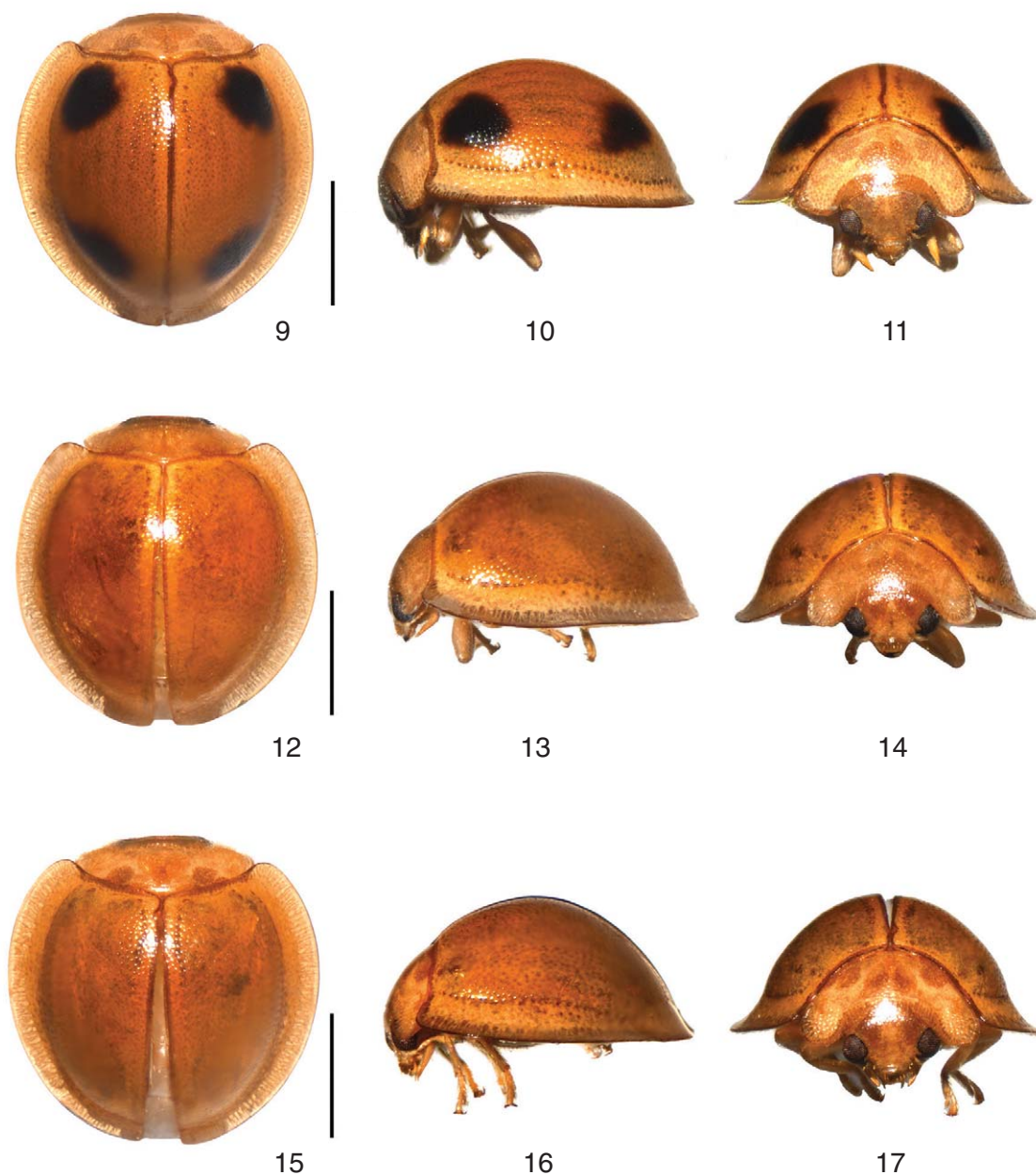
Body small, rounded oval, moderately convex and glabrous (Figs 12–13). Dorsal and ventral sides uniformly yellow, without other external spots. Head comparatively small, about $0.31\times$ of elytral width (HW/EW = 1:3.22), frons with inconspicuous punctures and sparse silvery white pubescence; eyes small and almost oval, rather coarsely faceted, the widest interocular distance about $0.54\times$ of head width (Fig. 14). Pronotum about $0.61\times$ of elytral width (PW/EW = 1:1.64), pronotal punctures fine, smaller than those on head, separated by about 0.3–1.0 times a diameter. Surface of elytra with irregular punctures,

larger than those on head, separated by about 0.2–0.3 times a diameter. Surface of prosternum and mesoventrite slightly shagreened with inconspicuous punctures and sparse and long hairs. Metaventrite shagreened, punctures inconspicuous with short setae in punctures.

Male genitalia: Penis very slender, extremely long, with a large penis capsule; apex of penis curved, with many small teeth (Figs 23–24); penis guide of tegmen almost straight in lateral view, inner margin distinct-

ly protuberant at basal 2/5, apex pointed and curved (Fig. 25); parameres very slender, distinctly longer than penis guide, about 1.2 times as long as parameres; penis guide slender in ventral view, apex simple and pointed (Fig. 26).

Female genitalia: coxites stout and triangular, about 2.4 times as long as wide, outer margin almost straight, median part of inner margin feebly notched, apex rounded, each with several long terminal setae (Fig. 27); spermatheca sclerotised.



Figures 9–17. (9–11) *Chilocorellus quadrimaculatus* sp. nov.: (9) dorsal view; (10) lateral view; (11) frontal view. (12–14) *Chilocorellus protuberans* sp. nov.: (12) dorsal view; (13) lateral view; (14) frontal view. (15–17) *Chilocorellus tenuus* sp. nov.: (15) dorsal view; (16) lateral view; (17) frontal view. Scale bars: 1.0 mm.



Figures 18–31. (18–22) *Chilocorellus quadrimaculatus* sp. nov.: (18–21) male genitalia: (18) penis; (19) apex of penis; (20) tegmen, lateral view; (21) tegmen, ventral view; (22) female genitalia: ovipositor. (23–27) *Chilocorellus protuberans* sp. nov.: (23–26) male genitalia: (23) penis; (24) apex of penis; (25) tegmen, lateral view; (26) tegmen, ventral view; (27) female genitalia: ovipositor. (28–31) *Chilocorellus tenuous* sp. nov. male genitalia: (28) penis; (29) apex of penis; (30) tegmen, lateral view; (31) tegmen, ventral view. Scale bars: 0.3 mm.

Types. Holotype. 1♂, **Yunnan:** Nanping, Mengman, Mengla, 745 m, 10.V.2009, Wang XM Leg. Paratype. **Yunnan:** 2♂♂, Ainiguzai, Menglun, Jinghong; 1♂, 1♀, Longmen, Mengla, 1027 m, 9.V.2009, Wang XM Leg.; 1♀, Ganlongjing, Lianhuatan, Hekou, 890 m, 20.V.2009, Wang XM Leg.

Distribution. China (Yunnan).

Chilocorellus tenuus sp. nov.
(Figs 15–17, 28–31)

Etymology. The specific epithet refers to the tenuous penis and tegmen of male genitalia.

Diagnosis. This species is close to *C. protuberans* in the color pattern of the body which have dorsal and ventral sides uniformly yellow and without other external markings and similar male genitalia, but it can be distinguished from the latter by the simple apex of penis with many large teeth, simple and tenuous penis guide of tegmen and parameres slightly shorter than penis guide.

Description. TL: 2.37–2.50 mm, TW: 2.46–2.51 mm, TH: 1.17–1.22 mm, TL/TW: 1.06–1.10; PL/PW: 0.44–0.46; EL/EW: 0.86–0.89.

Body small, rounded oval, moderately convex and glabrous, subhemispherical; dorsal surface glabrous (Figs 15–16). Dorsal and ventral sides uniformly yellow, without other external spots. Head comparatively small, about 0.32× of elytral width (HW/EW = 1:3.15), punctures on frons inconspicuous, separated by about 0.5–1.0 times a diameter, with sparse, thin silvery white pubescence; eyes small and almost oval, rather coarsely faceted, widest interocular distance about 0.52× of head width (Fig. 17). Pronotum about 0.59× of elytral width (PW/EW = 1:1.68), pronotal punctures fine, separated by about 0.5–2.0 times a diameter. Elytra with irregular punctures, larger than those on head, separated by about 0.2–0.5 times a diameter. Surface of prosternum slightly shagreened with inconspicuous punctures and sparse, and long hairs. Meso- and metaventrites with moderately large punctures, separated by about 0.5–2.0 times a diameter, with short setae in punctures.

Male genitalia: Penis very long and slender, with a large penis capsule; apex of penis with many large

teeth (Figs 28–29); penis guide of tegmen arcuate in lateral view, widest at base, tapering to apex, apex simple and pointed (Fig. 30); parameres very slender, slightly shorter than penis guide; penis guide slender in ventral view, apex simple and pointed (Fig. 31).

Female genitalia: unknown.

Types. Holotype. 1♂, **Yunnan:** Menga, Menghai, 1170 m, 12.V.2009, Wang XM Leg. Paratype. **Yunnan:** 1♂, same data as holotype; 2♂♂, Longmen, Mengla, 1077 m, 9.V.2009, Wang XM Leg.

Distribution. China (Yunnan).

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REFERENCES

- Crotch, G. R. A. 1874. A revision of the coleopterous family Coccinellidae. London. xv + 311 pp.
- Hoàng, D. 1982. (Editor). Ladybeetles of Viet Nam (Coleoptera: Coccinellidae). Part 1. Nha xuất bản khoa học và kỹ thuật, Hanoi, 211 pp.
- Miyatake, M. 1994. Revisional studies on Asian genera of the subfamily Sticholotidinae (Coleoptera: Coccinellidae). Memoirs of the College of Agriculture, Ehime University, 38: 223–292.
- Poorani, J. 2003. A new species of the genus *Synonymorpha* Miyatake (Coleoptera: Coccinellidae) from south India. *Zootaxa*, 212: 1–6.
- Sasaji, H. 1971. Fauna Japonica. Coccinellidae (Insecta: Coleoptera). Academic Press Japan, Tokyo. ix + 340 pp., xv plates.
- Ślipiński, S. A. 2004. Revision of the Australian Coccinellidae (Coleoptera). Part 2. Tribe Sticholotidini. *Annales Zoologici* (Warsaw), 54(2): 389–402.

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