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REVISION OF THE GENUS *IXALMA* PASCOE
FROM JAPAN
(COL., CURCULIONIDAE)*

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This paper is a systematic revision of the genus *Ixalma* Pascoe from Japan. Biological and larval studies will be published hereafter.

Before going further, the author wishes to express his cordial thanks to Prof. K. Yasumatsu and Prof. Y. Hirashima for their kind guidance in the course of the present study.

Genus *Ixalma* Pascoe

Ixalma Pascoe, Linn. Journ. Zool, XI: 214, 1871.—Faust, Ann. Mus. Civ. Genova, 2, XIV (XXXIV): 84, 1894.—Kôno, Ins. Mats., V: 2, 1930; Trans. Sapporo Nat. Hist. Soc., XV (1): 29, 1937.—Winkler, Cat. Col. reg. palaeare.: 1533, 1932.—Klima, Col. Cat. 146, Tachygoninae: 3, 1936.—Voss, Ent. Blätt., 41-44: 161, 1945-48 (1949).

Ixalma Lewis, Cat. Col. Jap. Archip.: 22, 1879 (err. typ.).

Celia Roelofs, Ann. Soc. Ent. Belg., XVII: 126, 1874.—Faust, Ann. Mus. Civ. Genova, 2, XIV (XXXIV): 84, 1894.

Xenopus (olim *Celia*) Roelofs, Ann. Soc. Ent. Belg., XVIII, T. 1, 1875.—Csiki, Col. Cat., 149, Cossoninae: 195, 1936.

Type species: *Ixalma rufescens* Pascoe, 1871, from Singapore.

Range: India, Java to Japan.

Key to species of the genus *Ixalma* occurring in Japan

- 1(2): Rostrum very short, as long as or a little longer than wide. Scape of antenna slender, the apex reaching a little behind eye and weakly curved inward. Elytra not tuberculated and the shoulders simply rounded. Anterior 4 femora not dentate or each with a minute tooth. Reddish brown, antennae and bases of femora yellowish brown. Length: 3.5-4 mm. Amami-Oshima, Kyushu, Shikoku, Honshu. . . . 1. *I. hilleri* Roelofs
- 2(1): Rostrum two or more times as long as wide. Scape of antenna nearly straight and the apex not reaching the posterior margin of eye. Anterior

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- 4 femora with sharp teeth. Pronotum black or with a black longitudinal stripe on each side.
- 3(6): Elytra with tubercles, the shoulders more or less strongly expanded laterally. Pronotum with a black stripe on each side.
- 4(5): Elytra with the 3rd interval tuberculated at the middle, basal 1/3 of 5th interval more or less elevated. Basis of elytra brown and the remaining part of elytra dark brown. Length: 4.5-5.5 mm. Kyushu, Shikoku, Honshu. 2. *I. dentipes* Roelofs
- 5(4): Elytra with the 3rd and 5th intervals tuberculated, the former on the middle and the latter a little before the middle, base of 5th interval weakly elevated. Elytra unicolored brown. Length: 5.5-6 mm. Kyushu, Honshu. 3. *I. quadrigibbosus* sp. nov.
- 6(3): Elytra not tuberculated, the shoulders not strongly expanded laterally.
- 7(8): Antennal club with 1st segment a little longer than wide. Rostrum slender, three times as long as wide. Brown, pronotum with a longitudinal black stripe on each side, bases of femora yellowish brown. Length: 5.5-6 mm. Formosa, Kyushu. 4. *I. guttulum* Kôno
- 8(7): Antennal club with 1st segment a little shorter than wide. Rostrum 2-2.5 times as long as wide.
- 9(10): Frons between eyes half as broad as the base of rostrum and weakly depressed. Pronotum and underside entirely black, elytra each with a black spot on the declivity of 5th interval and with a longitudinal black broad stripe on the lateral margin. Length: 5.5-6 mm. Shikoku, Honshu. 5. *I. nigriventris* Kôno
- 10(9): Frons between eyes a little narrower than the base of rostrum, flat and with a small median depression. Brown, pronotum with a black stripe on each side, sometimes elytra each with a broad lateral dark stripe. Length: 4-4.7 mm. Kyushu, Honshu. 6. *I. okadai* Kôno

1. *Ixalma hilleri* Roelofs

Ixalma hilleri Roelofs, Ann. Soc. Ent. Belg., XXII, Compt. rend.: 54, 1879; Ann. Soc. Ent. Belg., XXIV: 18, 1880.—Faust, Ann. Mus. Civ. Genova, 2, XIV (XXXIV): 84, 1894.—Kôno, Trans. Sapporo Nat. Hist. Soc., XV (1): 32, 1937; Icon. Ins. Jap.: 1269, f. 3658, 1950.—Winkler, Cat. Col. reg. palaearc.: 1533, 1932.—Voss, Ent. Blätt., 41-44: 163, 1949.—Kuroko, Kontyû, 25: 109, 1957.

Ixalma hilleri Lewis, Cat. Col. Jap. Archip.: 22, 1879.

The teeth on anterior 4 femora are variable in shape, in several specimens from Mt. Kanayama in Fukuoka and all specimens from Amami-Oshima these are minute and triangular, and in several specimens from Kyushu femur with a short brown keel instead of tooth, but the tooth on femur is absent in most

of the specimens.

Sexual dimorphism of the structure is very slight, terminal segment of abdomen scarcely depressed and transversely wrinkled in male, or slightly convex and indiscernibly wrinkled in female.

Apophysis of female genital segment of this species is short and bifurcated, while in the remaining species occurring in Japan the apophysis is stick-shaped. So far as the structure of rostrum, antennae, female genital segment and sexual dimorphism are concerned, *hilleri* may be separable from the others as a natural group, but unfortunately the type species of the genus is unknown to the author. *I. miniata* Voss from Fukien, China, may be close to *hilleri*.

Attacked plant: *Kadsura japonica* Thunberg, larvae are the leaf-miner (after Kuroko, 1957).

2. *Ixalma dentipes* Roelofs

Celia dentipes Roelofs, Ann. Soc. Ent. Belg., XVII: 127, 1874.—Faust, Ann. Mus. Civ. Genova, 2, XIV (XXXIV): 84, 1894.

Xenopus (olim *Celia*) *dentipes* Roelofs, Ann. Soc. Ent. Belg., XVIII, T. 1, f. 2, 1875.—Csiki, Col. Cat., 149, Cossoninae: 195, 1936.

Ixalma dentipes Lewis, Cat. Col. Jap. Archip.: 22, 1879.—Schonfeldt, Cat. Col. Jap.: 145, 1887.—Kôno, Ins. Mats.: V: 2, 1930; Trans. Sapporo Nat. Hist. Soc., XVI: 29, 1937.—Winkler, Cat. Col. reg. palaearc.: 1533, 1932.—Voss, Ent. Blätt., 41-44: 164, 1949.—Ohno, Shin Konchû, VII (13): 27, 1954.—Morimoto, Shin Konchû, VIII (3): 46, 1955.

? = *I. klapperichi* Voss, Ent. Blätt., 41-44: 162, fig., 1949.

This species is considerably variable in the shapes of humeral angle, tubercle on the 3rd interval and subapical swelling on elytron. Humeral angle of elytron is simply rounded or triangularly projected laterally, and there are many transitions between these two extremes.

Metasternum with a pair of small tufts of hairs in male.

I. klapperichi Voss, 1949, from Fukien, China, may be presumably regarded as an intraspecific variant of *dentipes*.

Attacked plant: Mr. H. Ichihashi informed the author that this species was collectable from the leaf of *Callicarpa japonica* Thunberg by beating.

3. *Ixalma quadrigibbosus* sp. nov.

Red-brown, femora with a dilated area dark brown, pronotum with a black longitudinal stripe on each side.

Head broader than long, strongly but not very closely punctured; frons between eyes $3/4$ times as broad as the base of rostrum, with a small median depression. Rostrum twice as long as wide, smooth, finely and sparsely punctured. Antennae inserted into the middle of rostrum; scape slender, weakly clavate and slightly curved inward near the tip and reaching behind the middle of

eye; funicle with 1st segment robust, 1.5 times as long as wide, 2nd segment slender, a little shorter than the 1st, 3rd segment slightly shorter than the 2nd, 4th, 5th and 6th segments subequal in shape to each other, a little longer than wide, 7th segment larger than the 6th; club shorter than all the segments of funicle taken together, 1st segment a little longer than wide, 2nd segment as long as wide, shorter than the 1st.

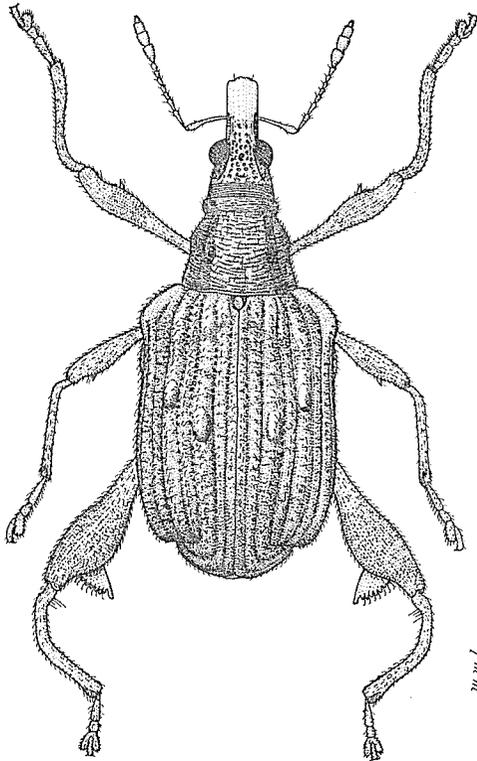


Fig. 1. *Ixalma quadrigibbosus*, sp. nov.

Pronotum transverse (7 : 6), conical, the sides weakly sinuate, subapical constriction distinct, frontal margin truncate and hind one weakly arched posteriorly, dorsum slightly depressed near the lateral margin behind the middle, transversely and closely wrinkled-sculptured.

Scutellum elongate-cordiform.

Elytra much broader than pronotum, longer than wide (7 : 5), fumeral angle roundly projected laterally, subapical swelling distinct, 3rd interval on the middle and 5th interval before the middle each with a tubercle, basal 1/4 of 3rd and 5th intervals convex, remaining intervals flattish, much broader than striae,

dorsum weakly depressed behind scutellum, finely pubescent, 3rd, 5th and 8th intervals with two rows and remaining intervals each with a row of pubescence, basal margins of elytra a little closely pubescent.

Underside slightly wrinkled and sparsely punctured. Intercoxal process of 1st ventral segment triangular, sutures between the ventral segments curved posteriorly at the lateral margin.

Anterior 4 tibiae Γ -shaped, teeth of anterior 4 femora weakly notched laterally, hind femur strongly clubbed, with a large, triangular and pectinate tooth,

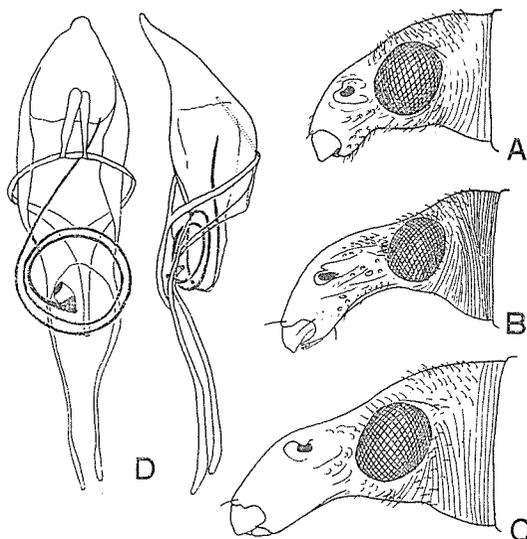


Fig. 2. A, B, C. Male rostrum, lateral aspect.
A. *hilleri*. B. *okadae*. C. *quadrigibbosus*.
D. Aedeagus of *quadrigibbosus*, dorsal and lateral aspects.

which has 7–10 denticles. Hind tarsus with the 1st segment twice as long as wide, 2nd segment half as long as the 1st, 3rd segment strongly bilobed. Claws with obtuse teeth at the base.

♂: Metasternum with a pair of tubercles, 1st segment of abdomen \wedge -shapedly depressed at the base, 5th segment of abdomen slightly depressed at the middle.

♀: Metasternum simple, abdomen not depressed.

Length: 5.5–6 mm.

Habitat: Japan (Kyushu, Honshu).

Holotype ♂, allotype ♀, Hirakura, Mie Univ. Forest, Ichishi-gun, Mie Pref., 14–15. V. 1957, H. Ichihashi leg., preserved in the collection of the Entomological

Laboratory of Kyushu University.

Paratypes: same locality with holotype, 2 ♂♂ 7 ♀♀, 14 & 26. V. 1957, H. Ichihashi leg. Gokurakuji, Hiroshima, 1 ♂, 9. IV. 1955, T. Yano leg. Hikosan, Fukuoka Pref., 1 ♂, 3. VIII. 1954, T. Yoshida leg.; 1 ♀, 15. VII. 1958, K. Morimoto leg. Mt. Fukuchi, Fukuoka Pref., 1 ♀, 23. V. 1945, S. Amano leg. Paratypes are preserved in the collections of the Entomological Laboratory of Kyushu University, the Entomological Laboratory of Ehime University, private collections of Mr. H. Ichihashi and of the author.

This new species is similar to *dentipes*, but easily separable from the latter by the characters noted in the key.

Attacked plant: Mr. H. Ichihashi collected these specimens from *Illicium religiosum* Sieb. et Zucc. by beating.

4. *Ixalma guttulum* Kôno

Ixalma guttulum Kôno, Ins. Mats., II: 169, t. VI, f. 15, 1928; Ins. Mats., V: 2, 1930.—Klima, Col. Cat., 146, Tachygoninae: 3, 1936.—Kôno, Trans. Sapporo Nat. Hist. Soc. XV (1): 31, 1937.—Voss, Ent. Blätt., 41-44: 164, 1949.

Male metasternum closely haired behind the middle, 1st and 5th segments of abdomen flattish or depressed at the middle in male.

This species has hitherto been known from Formosa and is newly recorded from Japan in this paper.

Specimens examined: Kakuyama, Amakusa, 1 ♀, 13. IX. 1931, H. Hori leg. Mt. Eboshi, Taniyama, Kagoshima Pref., 1 ♂, 23. V. 1958, H. Maebara leg.

5. *Ixalma nigriventris* Kôno

Ixalma nigriventris Kôno, Trans. Sapporo Nat. Hist. Soc., XV (1): 31, f. 2, 1937.—Voss, Ent. Blätt., 41-44: 164, 1949.—Kôno, Icon. Ins. Jap.: 1270, f. 3660, 1950.—Morimoto, Gensei, II: 44, 1953.—Ohno, Shin Konchû, VII (13): 27, 1954.

This species is easily recognized by the coloration.

Male metasternum a little closely covered with hairs behind the middle, 1st and 5th segments of abdomen depressed at the middle in male.

6. *Ixalma okadai* Kôno

Ixalma hilleri Kôno (nec Roelofs) Ins. Mats., V: 2, 1930.

Ixalma okadai Kôno, Trans. Sapporo Nat. Hist. Soc., XV (1): 30, f. 1, 1937.—Voss, Ent. Blätt., 41-44: 164, 1949.—Kôno, Icon. Ins. Jap.: 1269, f. 3659, 1950.—Ohno, Shin Konchû, VII (13): 27, 1954.

This species is variable in coloration of elytra. Three specimens from Aichi and Ôita Prefectures are unicolored brown.

Male metasternum and abdomen of this species are similarly structured as in *nigriventris*.