Jpn. J. Ent., 61 (3): 569-575. September 25, 1993

Studies on the Anobiidae (Coleoptera) from Japan and Neighboring Countries

X. Discovery of the Genus *Rhamna* PEYERIMHOFF from Japan with Descriptions of Two New Species

Masahiro Sakai

Department of Parasitology, Ehime University School of Medicine, Shigenobu, Ehime, 791-02 Japan

Abstract The genus *Rhamna* PEYERIMHOFF, previously known only from Africa and Spain, is recorded for the first time from Japan. Two Japanese representatives, *R. kinoshitai* and *R. yaeyamana* are newly described. Diagnostic characters of the new species and a revised definition of the genus are given.

Key words: Anobiidae; Rhamna; generic definition; new species; Japan.

The genus *Rhamna* PEYERIMHOFF comprising three known species has been recorded only from Africa and Spain. The author found several Japanese specimens apparently belonging to this genus, which have been collected in Nagasaki Prefecture, Kyushu, and on Iriomote Island of the Yaeyama Isles. lying near the southwestern end of Japan opposite to Taiwan. They are classified into two new species and represent the first discovery of the genus *Rhamna* from Asia.

Judging from the morphological similarity, the two Japanese species described in the following lines have obviously become differentiated in the Japanese Archipelago. This fact seems to suggest that this genus is widely distributed from Africa to the Far East through South and Southeast Asia. In the near future additional habitats in Asia will be reported.

In spite of the small-sized and unnoticeably simple outline of body, *Rhamna* is easily separable from any other anobiid genera of similar body shape by the combination of greatly expanded middle and hind femora and very slender front tibiae, which makes a sharp contrast. This remarkable feature can be regarded as an adaptation to protect the appendages when the body is retracted. It is doubtless that *Rhamna* is the most evolved of all the known genera of the subfamily Tricoryninae.

On this occasion, the author would like to deal with the generic definition of *Rhamna* with descriptions of the new species.

Genus Rhamna PEYERIMHOFF

Rhamna PEYERIMHOFF, 1913, 518 (Type species: *Rhamna semen* PEYERIMHOFF, by monotypy); ESPAÑOL, 1968, 127; 1970, 187; 1977, 171–172; 1979, 36. 570

Masahiro Sakai

Head strongly deflexed, evenly convex above, not depressed on frons; mandible almost reaching metasternum when the body is retracted; fronto-clypeal suture indistinct; supra-antennal ridge weakly indicated. Eyes relatively large, subcircular. Antennae 11-segmented (10-segmented in African species); three terminal segments enlarged, forming a loose club; 1st segment robust, largest, sharply projected apically, funicular segments from 3rd to 8th short, more or less longer and shorter alternately, produced inward, and provided with one or two long setae at the apex of inner projection of each. Last segment of each palpus with the apical margin more or less incised or emarginate, furnished with some minute sensilla. Undersurface of head slightly concave on submentum and post-maxillary portion; gula shorter than submentum. Pronotum strongly transverse, evenly convex above; lateral margin dorsally arcuate in accordance with the shape of middle femora. Elytra well convex, devoid of any trace of stria; sides arcuate; humeral calli barely discernible; apex conjointly rounded.

Prosternum bent, relatively long, with or without medio-longitudinal keel; prosternal process short, subtriangular. Mesosternum long, broad between coxae, concave on disc for the reception of antennae in repose, with intercoxal junction to metasternum rounded. Mesepisternum large. Metepisternum entirely concealed externally, with the posterior portion reduced linearly. Metasternum elliptically depressed corresponding to the shape of middle femora just behind transverse carina (fig. 4: tc) anteriorly, vertically declivous between mesocoxae; tarsal hook (fig. 4: th) present, probably formed by the modification of the transverse carina; posterior portion of metasternum long, devoid of medio-longitudinal groove; intermetacoxal portion broad, straightly truncate. Abdominal sternite with 1st visible sternite long, ovally depressed for the reception of femora, with the intercoxal process broadly expanded; 3rd and 4th short, 5th gently rounded apically. All sutures entire though the 1st is somewhat finer. Front legs invisible in repose, concealed in the cleft between head and thorax. Front coxae prolonged and touching each other at the apices, though the coxal cavities are widely separated. Middle coxae concealed under overhang of the anterior portion of metasternum. Hind coxae strongly dilated laterad, forming a triangular plate covering a half of Middle and hind femora strongly expanded into discal plate, entirely confemora. cealing tibiae and tarsi in retraction. Tibiae extremely slender, devoid of apical spurs. Tarsal segments short, compactly jointed. Claws simple

Metendosternite with furcal stalk (fs) conical, extremely developed; ventral longitudinal flange interrupted at the middle of furcal stalk. Male genitalia with two hook-like armatures at the apex of endophallus in the Japanese species.

External sexual dimorphism not apparent.



Figs. 1-7. *Rhamna kinoshitai* sp. nov., male. — 1, Antenna; 2, maxillary palpus; 3, prosternum and front leg; 4, mesosternum and anterior part of metasternum with their side pieces; 5, metendosternite; 6, hind leg; 7, genitalia, dorsal view. (fs: furcal stalk; ms: mesosternum; mt: metasternum; msp: mesepisternum; mc: middle coxa; tc: transverse carina; th: tarsal hook).

Rhamna kinoshitai sp. nov.

(Figs. 1-7)

Length 1.34-1.55 mm; width 0.86-1.00 mm.

Male. Body oval, about 1.55 times as long as wide, widest at basal 1/4 of elytra, well shining. Color reddish brown to dark reddish brown; head, pronotum, abdominal sternites feebly diluted, antennae, palpi, tarsi and tibiae yellowish brown. Pubescence yellowish white, fine, recumbent, moderate in density, relatively long and dense on elytra, directed posteriorly on underside of body and elytra, laterally on pronotum, and anteriorly on head.

Head finely and rather densely punctate, gently and evenly convex above; fronto-clypeal suture undetectable. Eyes large, separated by about 1.5 times their

572

Masahiro SAKAI

vertical diameter. Antennae 11-segmented; 1st segment large, very sharply pointed at apex, with the apical projection surmounted by pigmented fringe, 2nd elongate, 3rd relatively long among funicular segments, 4th to 8th short, with inner projection weak, club segments somewhat slender, 9th and 10th similar in shape and size to each other, 10th about 1.8 times as long as wide, 11th oblong-oval, about 2.3 times as long as wide. Last segment of maxillary palpus feebly emarginate at apical margin; last segment of labial palpus much broader than maxillary one, gently emarginate at apex. Pronotum about twice as wide as long, very finely and inconspicuously punctate; sides broadly explanate. Scutellum semicircular, flattened on disc. Elytra conjointly 1.2–1.3 times as long as wide, strongly and evenly convex; punctures fine, densest at post-scutellar portion, separated by a distance equal to one to 1.5 times their diameter, then gradually becoming finer and sparser toward sides and apex.

Prosternum rather broad, with posterior margin bi-emarginate for the insertion of coxae, with medio-longitudinal keel well raised and extending from the center to the tip of prosternal process. Posterior portion of metasternum devoid of distinct tumor behind center, though a faint indication of circular impression is discernible in careful observation; punctures fine but distinct throughout surface, separated on an average by a distance equal to one to two their diameter. Abdominal sternite finely and densely punctate; punctures much denser laterally and apically, somewhat rugosely arranged on 5th; 1st visible sternite long, with the intercoxal process broad, and polished at the apex; 2nd about 2/3 as long as 1st on midline, and about 1.5 times as long as 3rd, 4th shortest, about 0.8 times as long as 3rd, 5th uniformly rounded apically, grooved along apical margin. Hind tibiae with two stouter setae near apex on outer face. Genitalia relatively broad; median lobe long and thick; lateral lobes stout, strongly incurved; hook-like armatures of endophallus large.

Female. External sexual dimorphism not distinct even in conformation of antennae. Metasternal circular impression sometimes hardly discernible.

Distribution. Kyushu (Nagasaki Pref.).

Holotype: \vec{O} , Mt. Konpira-Suwa Shrine, Nagasaki City, 14.VII.1973, S. KINOSHITA lgt. Paratypes: 8 exs., same data as holotype. (The holotype and five paratypes are preserved in the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama, Japan.)

This new species is separated from the African species *Rhamna semen* PEYERIMHOFF by having 10-segmented antennae, and from *R. leonensis* (PIC) by the broader body shape, shortened pubescence and the different conformation of male genitalia (in comparison with the figure given by ESPAÑOL, 1977).

Rhamna yaeyamana sp. nov.

(Figs. 8-12)

Length 1.50-1.75 mm; width 0.95-1.13 mm.



Figs. 8-12. *Rhamna yaeyamana* sp. nov. — 8, Male genitalia, dorsal view; 9, female maxillary palpus; 10, female labial palpus; 11, 3rd to 9th segments of male antenna; 12, female antenna.

Male. Body oval, 1.5-1.6 times as long as wide, similar in outline to the preceding species, *R. kinoshitai*. Coloration and arrangement of pubescence very similar to those in *R. kinoshitai*, but the dorsal surface of body is faintly more infuscate.

Head very finely and obsoletely punctate; fronto-clypeal suture uncertain, but the clypeus is discernible because of the entirely glabrous surface. Eyes circular, moderate in size, separated by about 1.5 times their vertical diameter. Antennae relatively short; 1st segment robust, largest, sharply projected apically, 2nd ovate, somewhat flattened, 3rd to 8th short, alternately longer and shorter, with inner projection becoming more acute toward apical segment, club segments thick, 9th and 10th similar in shape and size to each other, 10th about 1.4 times as long as wide, 11th ovate, 1.7 times as long as wide. Last segment of maxillary palpus deeply bi-incised at the apical margin. Last segment of labial palpus much more 574

Masahiro Sakai

dilated apically than that of maxillary one, shallowly but definitely incised at the apical margin. Undersurface of head sparsely punctate, slightly concave on submentum and post-maxillary portion. Pronotum about 2.1 times as wide as long, minutely, nearly uniformly punctate; lateral margin dorsally arcuate; anterior corner acutely angled; basal margin sinuate, produced behind at the middle. Scutellum semi-elliptical, relatively large. Elytra conjointly 1.2–1.3 times as long as wide, widest behind base, strongly convex above; punctures fine and sparse, separated at post-scutellar portion by a distance equal to 1.5 to 2 times their diameter, gradually becoming further finer laterally; humeral calli inconspicuous.

Prosternum shining, short, so strongly bent that the prosternal process is situated vertically. Posterior portion of metasternum well polished, with a small but definite tumor behind center, finely punctate; punctures nearly obsolete at the center though sparse but distinct at sides. Abdominal sternite finely and densely punctate; punctures finer and denser laterally and apically, not rugulose on 5th. Genitalia rather slender; median lobe short; lateral lobes slender, gently incurvate.

Female. External sexual dimorphism uncertain. Occasionally, apical margin of maxillary palpus simply incised, and small metasternal tumor evanescent.

Distribution. Ryukyu Is. (Iriomote I.).

Holotype: \mathcal{J} , End of the trans-island road (near Mt. Goza), Iriomote Is., Yaeyama Isles., Ryukyus, 17.V.1973, S. HISAMATSU lgt. Paratypes: 5 exs., same data as holotype. (The holotype and three paratypes are preserved in the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama, Japan.)

In addition to the differences given in the following key, this species also differs from R. kinoshitai in having a little larger body, and more distinct and dense punctation on elytra and metasternum.

Key to the Japanese Species of the Genus Rhamna

 Prosternum relatively broad, concave on disc, with well raised medio-longitudinal keel. Funicular segments of antennae narrower, slightly produced inward. Last segment of maxillary palpus weakly emarginate at apical margin. Male genitalia stout; lateral lobes stout, strongly incurved apically.
Rhamna kinoshitai sp. nov.

Acknowledgments

I would like to thank Dr. S.-I. UÉNO, National Science Museum (Nat. Hist.),

NII-Electronic Library Service

Tokyo, for reading the manuscript of this paper, Dr. F. ESPAÑOL, Universitat de Barcelona for the loan of a specimen of the African species *R. leonensis*, Dr. S. HISAMATSU, Matsuyama, and Prof. M. MIYATAKE and Prof. H. NISHIDA, Ehime University, for their help in many ways, and Mr. S. KINOSHITA for kind offer of Japanese material.

References

ESPAÑOL, F., 1968. Notas sobre anóbidos. XXXI. Géneros de Dorcatominae de la fauna etiópica. *Publnes. Inst. Biol. apl. Barcelona*, 44: 103-136.

------ 1977. Notas sobre anóbidos. LXXIV. Sobre Anobiidae de Ghana: el género Rhamna PEYERIMHOFF. Misc. zool., 4: 171-175.

1979. Géneros de Dorcatominae de la fauna europea (Col., Anobiidae). Nota 92. *Ibid.*, 5: 33-42.

PEYERIMHOFF, P. de., 1913. Nouveaux Coléoptères du nord africain. Annls. Soc. ent. Fr., 81: 515 521.

(Received April 8, 1993; Accepted April 28, 1993)