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**Research Article**

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**Three interesting new species of leaf beetles (Coleoptera: Chrysomelidae: Galerucinae) in BORNEENSIS collection at ITBC, Universiti Malaysia Sabah****Mohamed S. Mohamedsaid***48 Jalan SS 15/3A, 47500 Subang Jaya, Selangor, Malaysia.*

**ABSTRACT.** Three new species of leaf beetles of the subfamily Galerucinae are described and illustrated from Sabah, Malaysia: *Kinabalua musaamani*, new species, is the second species for the genus; *Taumacera khalednordini*, new species, is peculiar with the first antennal segment enlarged besides the third; and *Khasia ahmadshahi*, new species, is a wingless galerucine, which is also a new generic record for Southeast Asia.

**Keywords:** Leaf beetle, new species, Malaysia.

**INTRODUCTION**

During my visit to the Institute for Tropical Biology and Conservation (ITBC) of Universiti Malaysia Sabah (UMS) at Kota Kinabalu to examine their insect collections, three new species of leaf beetles (Chrysomelidae) subfamily Galerucinae were discovered. This is a very interesting finding. The first new species is from the genus *Kinabalua* Mohamedsaid 1997, which represents the second species for the genus after *Kinabalua antennata* Mohamedsaid 1997 described from Sabah. The second new species belongs to genus *Taumacera* Thunberg 1814, which is represented by 24 species from Malaysia, including six from Sabah (Mohamedsaid, 2004). The new species, which is the seventh species of *Taumacera* from Sabah, is very peculiar in having the antennae with the first

segment modified and greatly enlarged in addition to the third segment. *Taumacera* is generally characterised with the antennal third segment enlarged in various shapes. The genus has been revised recently by Reid (1999). The new species, with elytra longitudinally ridged resembles *T. costatipennis* (Jacoby, 1896) described from Sumatra and *T. midtibialis* Mohamedsaid 1998 described from Sarawak. But in the latter two species, the first antennal segment of the male is normal, not modified. The third new species belongs to the genus *Khasia* Jacoby, 1899, a wingless galerucine described from India (Maulik, 1936). The occurrence of *Khasia* in Sabah, represented by a new species, is also a new generic record for Southeast Asia.

These three interesting new species of leaf beetles from Sabah are herein described and illustrated. Holotypes are deposited at BORNEENSIS, the reference collection at ITBC, UMS, Kota Kinabalu, Sabah, Malaysia.

**TAXONOMY**

***Kinabalua musaamani* Mohamedsaid, new species** (Figures 1, 2 and 3)

**Etymology.** The new species is named after Yang Amat Berhormat Datuk Seri Musa Hj. Aman, the Pro-Chancellor of Universiti Malaysia Sabah, Kota Kinabalu.

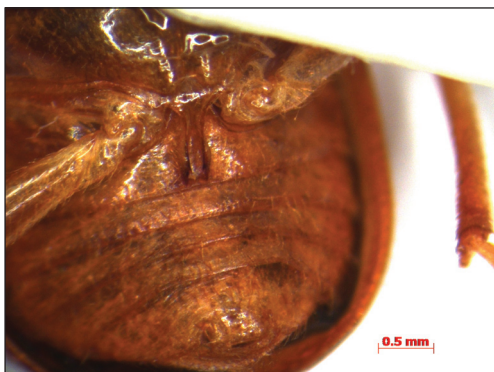
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**Figure 1.** Habitus of male *Kinabalua musaamani* Mohamedsaid, new species.



**Figure 2.** The spined 8<sup>th</sup> antennal segment of male *Kinabalua musaamani* Mohamedsaid, new species.



**Figure 3.** Ventrals of the male *Kinabalua musaamani* Mohamedsaid, with a long, narrow metasternal process.

**Description.** Male. Body form elongate-oblong, subparallel-sided, convex, with dorsal surface glabrous; brownish except scutellum black. Head with vertex, smooth, convex; frontal tubercles strongly elevated, very large, transverse, alutaceous; frontoclypeus narrowly, triangularly raised, with surface keeled; labrum transverse, sparsely covered with long pubescence, truncate at apex; mandibles curved, with tips blackish; maxillary palpi long, the penultimate segment swollen, the apical smaller, conical. Eyes prominent, the interocular space 1.8 times as broad as transverse diameter of each eye. Antennae densely covered with fine hairs, long, extending to apical fourth of elytra; segment 1 club-shaped; segment 2 very small, 1.5 times as broad as long; segments 3-5 cylindrical, gradually shortened in length, moderately dilated at apex; segment 6 cylindrical, shorter than 5, but strongly dilated at apex; segment 7 very large, strongly dilated at apex, triangularly-shaped, convex on upper surface, broadly excavated on lower surface; segment 8 broader and longer than 6, cylindrical, on the lower surface raised a long, curved spine extending posteriorly to the excavated area of segment 7; segments 9-10 gradually narrower, subequal; segment 11 slightly longer than 10, pointed at apex; antennal insertions closed to each other, separated by one-half as broad as antennal socket. Pronotum 1.6 times as broad as long, broadest at apical third; sides rounded at apical third; anterior border unmargined, lateral and posterior borders margined; anterior margin broadly concave, posterior margin broadly rounded posteriorly; anterior angles tuberculate, posterior angles produced, both angles with a seta-bearing pore; disc smooth, shiny, with a pair of broad depression at sides, sparsely impressed with small punctures within the depressed area. Anterior coxal cavities closed posteriorly. Scutellum smooth, shiny, triangular, as long as broad, rounded at apex. Elytra subparallel-sided, rounded at apex, 1.3 times as long as broad; surface densely impressed with punctures

as large as on pronotum, confused; subbasal area transversely depressed; epipleuron broad, gradually narrowed to apex. Wing present. Metasternum with a pair of long, narrow median processes extending to posterior margin. Legs long, slender; protibia dilated in apical third; protarsus with first segment large, globose, broader than tibia, underneath with pad; mesotibia dilated in apical third; mesotarsus with first segment large, globose, underneath with pad; metatarsus with first segment elongate, cylindrical, without pad underneath; metatibia slightly dilated, lined with many short spines at apex, the inner apical lobe pointed; metatarsus with first segment elongate, cylindrical, as long as the remainder two combined; tarsal claws appendiculate. Abdomen with apical sternite trilobed, the median lobe transverse, moderately concave. Pygidium exposed, rounded at apex. Body length 8.6 mm. Female unknown.

**HOLOTYPE.** Male. MALAYSIA, Sabah, Ranau, Kinabalu Park HQ, 19-20.viii.2008, H. Takizawa. **PARATYPE.** Malaysia, Sabah, Ranau, Kinabalu Park HQ, 18-20, 23.viii.2008, H. Takizawa, male (ITBC).

**Remarks.** *Kinabalua antennata* Mohamedsaid, 1997 (Figures 4 and 5) differs from *K. musaamani* in having brownish scutellum, black elytra and abdomen, while the male antennal segment 8 is furnished with a short, straight spine.

***Taumacera khalednordini* Mohamedsaid, new species** (Figures 6, 7, 8)

**Etymology.** The new species is named in honour of Yang Berhormat Datuk Mohamed Khaled Nordin, the Minister of Higher Education Malaysia.

**Description.** Male. Body form elongate-oblong, subparallel-sided, convex, with dorsal surface glabrous; brownish, except scutellum and abdomen black. Head with vertex smooth,



**Figure 4.** Habitus male *Kinabalua antennata* Mohamedsaid.



**Figure 5.** The spined 8<sup>th</sup> antennal segment of male *Kinabalua antennata* Mohamedsaid.

shiny, convex, strongly elevated, divided by a median longitudinal groove; frontal tubercles transverse, moderately raised, depressed in middle, smooth, shiny; frontoclypeus broadly triangularly raised, flattened, smooth, shiny; labrum transverse, sparsely covered with long pubescence, truncate at apex; mandibles strongly curved, black at tips; maxillary palpi long, the penultimate segment swollen, the apical segment small, conical. Eyes prominent, the interocular space twice as broad as transverse diameter of each eye; view from above concealed by the extremely large antennal segments 1 and 3. Antennae moderately long, extending to middle of elytra; segments 1-3 glabrous, shiny, the remainder segments 4-11 densely covered with fine

hairs; segment 1 very large, dilated towards apex, convex on upper surface, slightly concave on lower surface; segment 2 very small, as long as broad; segment 3 extremely large, triangular, with the base broader than apex, deeply excavated, and with a small hole in the middle; segments 4-5 cylindrical, thickened, subequal in length; segments 6-11 cylindrical, slightly narrower than 5, lines with keel; segment 11 slightly longer than 10, pointed; antennal insertions close to each other, separated by as broad as antennal socket. Pronotum 1.4 times as broad as long, broadest in the apical third; anterior border unmarginated, lateral and posterior borders marginated; anterior margin broadly concave, posterior margin broadly rounded posteriorly; anterior angles tuberculate, posterior angles angulate, both angles with seta-bearing pore; disc smooth, shiny, with a pair of oblique depressions at sides, impressed with few small punctures within the depressed area. Anterior coxal cavities closed posteriorly. Scutellum smooth, shiny, triangular, longer than broad, rounded at apex. Elytra subparallel-sided, 1.6 times as long as broad, rounded at apex; surface with rows of closely, moderately large punctures, with interstices strongly raised, forming longitudinally ridges; each elytron with nine longitudinal ridges; subbasal area transversely depressed; lateral margins sharp, reflex; epipleuron broad, gradually narrowed to apex. Wing present. Metasternum with a pair of short median processes. Legs long, slender; protibia strongly dilated towards apex; protarsus with first segment dilated, globose, as broad as tibia, underneath with pad; mesotarsus with first segment dilated, globose, underneath with pad; metatibia with a long apical lobe at apex; metatarsus with first segment long, cylindrical, 1.5 times as long as the remainder two segments combined; tarsal claws appendiculate. Abdomen moderately densely covered with long white hairs; apical sternite trilobed, the median lobe transverse, concave. Pygidium rounded at apex. Body length 8.2 mm. Female unknown.

**HOLOTYPE.** Male. MALAYSIA, Sabah, Keningau, Crocker Range Park HQ, 9.viii.2008, H. Takizawa. **PARATYPE.** Malaysia, Sabah, Keningau, Crocker Range HQ, 9.viii.2008, H. Takizawa, male (ITBC).

**Remarks.** *Taumacera khalednordini* is easily distinguished from other species with the male having a strongly elevated vertex, divided by a median longitudinal groove, antennae with both first and third segments modified, and greatly enlarged. *Taumacera midtibialis* Mohamedsaid 1998 resembles the new species in having elytra longitudinally ridged, but the male with a middle tibiae excavated and the first antennal segment normal.



**Figure 6.** Habitus of male *Taumacera khalednordini* Mohamedsaid, new species.



**Figure 7.** Frontal view of male *Taumacera khalednordini* Mohamedsaid, new species.





**Figure 8.** Ventrite of *Taumacera khalednordini* Mohamedsaid, new species, with a short, broad metasternal process.

***Khasia ahmadshahi* Mohamedsaid, new species** (Figs 9, 10, 11)

**Etymology.** The new species is named in honour of Yang Berbahagia Tun Datuk Seri Panglima Ahmad Shah bin Abdullah, the Chancellor of Universiti Malaysia Sabah.

**Description.** Male. Body form elongate-oblong, broadest at apical third of elytra. Wingless.

Head with vertex convex, smooth, impunctate, finely striated; frontal tubercles longer than broad, elongate triangular; frontoclypeus triangularly raised, with surface flat, smooth; labrum quadrate; mandibles strongly curved; maxillary palpi long, with the penultimate segment very large, the apical segment very small, conical. Eyes small, with interocular space nearly three times as broad as transverse diameter of each eye. Antennae filiform, long extending to apical third of elytra, covered with fine hairs, and longer hairs at the apex of each segment; segment 1 largest, longest, club-shaped; segment 2 shortest, nearly one-half of 3; segments 3-5 subequal; segments 6-10 subequal, each slightly shorter than 5; segment 11 slightly longer than 10, pointed; antennal insertions close to each other, separated by as broad as antennal socket. Pronotum broadened towards apex, 1.3 times

as broad as long; anterior border unmargined, lateral and posterior borders margined; anterior margin broadly concave, posterior border emarginated in middle; lateral margins line with fine hairs; disc smooth, impunctate, shiny, transversely depressed in basal half; anterior and posterior angles tuberculate, with seta-bearing pore. Anterior coxal cavities closed posteriorly. Scutellum triangular, as long as broad, rounded at apex, smooth, shiny. Elytra convex, gradually broadened posteriorly, broadest at apical third, then narrowed to pointed and reflect apices; sutural margins strongly dehiscent from apical third; subbasal area transversely depressed; surface finely punctuate, smooth, shiny, sparsely covered with fine hairs; sides carinate from humerus to apical; epipleuron narrow. Legs very long, slender, with hind legs as long as body length; pro- and mesocoxa globular, metacoxa flattened; metatibia longer than either meso- or protibia; metatibia without a spine at apex; metatarsus with first segment longer than the remainder three segments combined; tarsal claws appendiculate. Abdomen densely covered with fine hairs; apical sternite trilobe, with median lobe transverse. Pygidium exposed, rounded at apex. Aedeagus curved, with apex recurved and pointed. Body length 3.0 mm. Female. Externally similar except, body size larger, length 3.2 mm.

**HOLOTYPE.** Male. MALAYSIA, Sabah, Ranau, Mt. Kinabalu, Laban Rata, 3300 m, 9-11.x.2008, H. Takizawa & TS Liew. **PARATYPES.** MALAYSIA, Sabah, Ranau, Mt Kinabalu, Laban Rata, 3300, 9-11.x.2008, H. Takizawa & TS Liew, male (ITBC); Mt Kinabalu, Laban Rata, 3300-3450 m, 10.x.2008, H. Takizawa & TS Liew, female (ITBC). Mt Kinabalu, 3150-3200, 3.v.1987, Burckhardt-Lobl, 2 males, 1 female, 1 not sexed (Museum d'histoire naturelle, Geneve, Switzerland (I. Lobl); male (RBCN).

**Remarks.** *Khasia kraatzi* Jacoby, 1899, the type species, differs from *Khasia ahmadshahi*



**Figure 9.** Habitus of male *Khasia ahmadshahi* Mohamedsaid, new species.



**Figure 10.** Aedeagus of *Khasia ahmadshahi* Mohamedsaid, new species



**Figure 11.** Habitus of female *Khasia ahmadshahi* Mohamedsaid, new species.

in having antennae with segments 1-6 in dark brown, 7 and 8 are yellowish, and 9-11 are black, pronotum reddish brown, with two depressions in basal area divided by sharp median longitudinal ridge. Dr. Ron Beenen from the Netherlands informed me that he has five specimens loaned by Dr. I. Lobl, Switzerland belonging to the *K. ahmadshahi*; it is here incorporated and accordingly designated as paratypes.

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