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LEAF BEETLES OF THE SUBFAMILY GALERUCINAE FROM PULAU TIOMAN, PENINSULAR MALAYSIA (COLEOPTERA: CHRYSOMELIDAE)

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ABSTRACT. - The leaf beetles of the subfamily Galerucinae from Tioman island are represented by 28 species, including two new species, and three new records for Peninsular Malaysia. The new species are: *Monolepta tiomanensis*, n.sp. and *Trichobalya tiomanensis*, n.sp. The new records are: *Hyphaenia discoidalis* Jacoby, *Pseudocophora distincta* Baly and *Strobiderus pygidialis* (Jacoby). The galerucne beetles on the island are much fewer than Langkawi, which is represented by 60 species. The poor representation in Tioman is probably due to the small size of the island and its distance being farther from the mainland than compared with Langkawi.

KEY WORDS. - Tioman Island, Malaysia, Chrysomelidae, Galerucinae, new species, *Monolepta tiomanensis*, *Trichobalya tiomanensis*.

INTRODUCTION

This paper presents a checklist of leaf beetles (the Chrysomelidae) of the subfamily Galerucinae from Tioman island based on specimens in the collection of the Centre for Insect Systematics, Universiti Kebangsaan Malaysia, Bangi (UKM). A comparison will also be made between the galerucine fauna of Tioman and Langkawi.

MATERIALS AND METHODS

Several field trips have been conducted (between 1990-95) to Tioman island to collect insect specimens for the Centre for Insect Systematics, UKM. Specimens were collected by sweeping the bushes or undergrowth with butterfly nets. In the laboratory, specimens were pinned, dried, labelled and kept in insect cabinets. Identification of the leaf beetles of the subfamily Galerucinae was made with the aid of the original descriptions and the reference collection in the UKM.

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RESULTS AND DISCUSSION

The Galerucinae from Tioman island are represented by 28 species, including two new species, and three new records for Peninsular Malaysia. The new species are: *Monolepta tiomanensis,* n.sp. and *Trichobalya tiomanensis,* n.sp. The new records are: *Hyphaenia discoidalis* Jacoby, *Pseudocophora distincta* Baly and *Strobiderus pygidialis* (Jacoby). Except for the newly described, all the species recorded from Tioman are represented in the mainland Peninsular Malaysia. The Galerucinae from Tioman represent about 11% of the total galerucine species from Peninsular Malaysia, compared to 24% from Langkawi (Mohamedsaid, 1996).

The galerucine beetles from Tioman are not as diverse as those in Langkawi. In Langkawi 60 galerucine beetle species are found. There are 17 genera recorded from Tioman, compared with 26 from Langkawi (Table 1). Of the 32 genera in total, only 11 common to both islands. *Monolepta* Chevrolat, the largest genus recorded in Peninsular Malaysia, is represented by 4 and 12 species in Tioman and Langkawi, respectively. The poor representation of the

Table 1. A list of the galerucine beetle genera from Tioman and Langkawi.

	Genera	**Tioman**	**Langkawi**
1.	*Aplosonyx*	+	+
2.	*Apophylia*	-	+
3.	*Arthrotus*	-	+
4.	*Aulacophora*	+	+
5.	*Cassena*	+	-
6.	*Cerophysa*	-	+
7.	*Cneorane*	-	+
8.	*Coeligetes*	+	-
9.	*Dercetina*	+	+
10.	*Gallerucida*	-	+
11.	*Haplosomoides*	-	+
12.	*Hoplasoma*	+	+
13.	*Hoplosaenidea*	+	+
14.	*Hyphaenia*	+	+
15.	*Liroetiella*	-	+
16.	*Trichomimastra*	-	+
17.	*Metrioidea*	-	+
18.	*Microlepta*	-	+
19.	*Monolepta*	-	+
20.	*Oides*	-	+
21.	*Palpoxena*	+	+
22.	*Polexima*	+	-
23.	*Psedeustetha*	+	+
24.	*Pseudocophora*	+	+
25.	*Pseudosastra*	-	+
26.	*Pyrrhalta*	+	-
27.	*Sermyloides*	-	+
28.	*Strobiderus*	+	+
29.	*Taumacera*	-	+
30.	*Theopea*	+	-
31.	*Trichobalya*	+	+
32.	*Xenoda*	+	-
Total genera		17	26

Galerucinae in Tioman (28 species), which one-half of the Langkawi (60 species), is probably due to its small size and its distance being farther from the mainland. Tioman which is one-half of the size of Langkawi is farther (40 km) from the mainland compared to Langkawi (30 km).

Although Tioman is poorly represented by the Galerucinae, there are interesting notes which merit mentioning here. Tioman is the second locality for the presence of *Aplosonyx sumatrensis* (Jacoby), *Hoplosaenidea malayensis* (Jacoby), *Hoplosaenidea subcostata* (Jacoby), *Monolepta terminata* Guerin-Meneville, *Polexima monstrosa* (Jacoby), *Pseudeustetha hirsuta* (Jacoby), *Pyrrhalta hageni* (Jacoby) and *Xenoda spinicornis* Baly in Peninsular Malaysia, after Hulu Perak (Mohamedsaid, 1995).

Theopea impressa (Fabricius), which is abundant in Tioman as well as in Perak, Selangor and Negeri Sembilan is absent in the Endau-Rompin area and Langkawi. The Endau-Rompin area is closer to Tioman, but dominated by another species, *Theopea elegantula* Baly (Mohamedsaid et al., 1989), which is apparently absent in the island. *Monolepta nigripes* and *M. terminata* have never been recorded anywhere else in the mainland Peninsular Malaysia, as abundant as in Tioman. On the other hand, *Hoplasoma unicolor* (Illiger), which is abundant in Langkawi and the mainland Peninsular Malaysia, is less abundant in Tioman. *Aulacophora antennata* Baly, which is abundant in the mainland Peninsular Malaysia and Langkawi is absent in Tioman.

DESCRIPTION OF NEW SPECIES

Monolepta tiomanensis, new species

(Figs. 1-3)

Material examined. - Holotype - female, Pulau Tioman, Pahang, Malaysia, coll. Zaidi, Ismail & Ruslan, 6-9 Jun.1990.

Paratypes - 6 females, same data as holotype; 20 females, Pulau Tioman, Pahang, Malaysia, coll. Yusof, Jainuddin & Mahbob, 27-31 Aug.1991; 5 females, coll. Zabidi, Sham & Razali, 22-28 Apr.1993.

Duplicates of the paratype specimens will be deposited at the Bishop Musuem, Honolulu and the Natural History Museum, London.

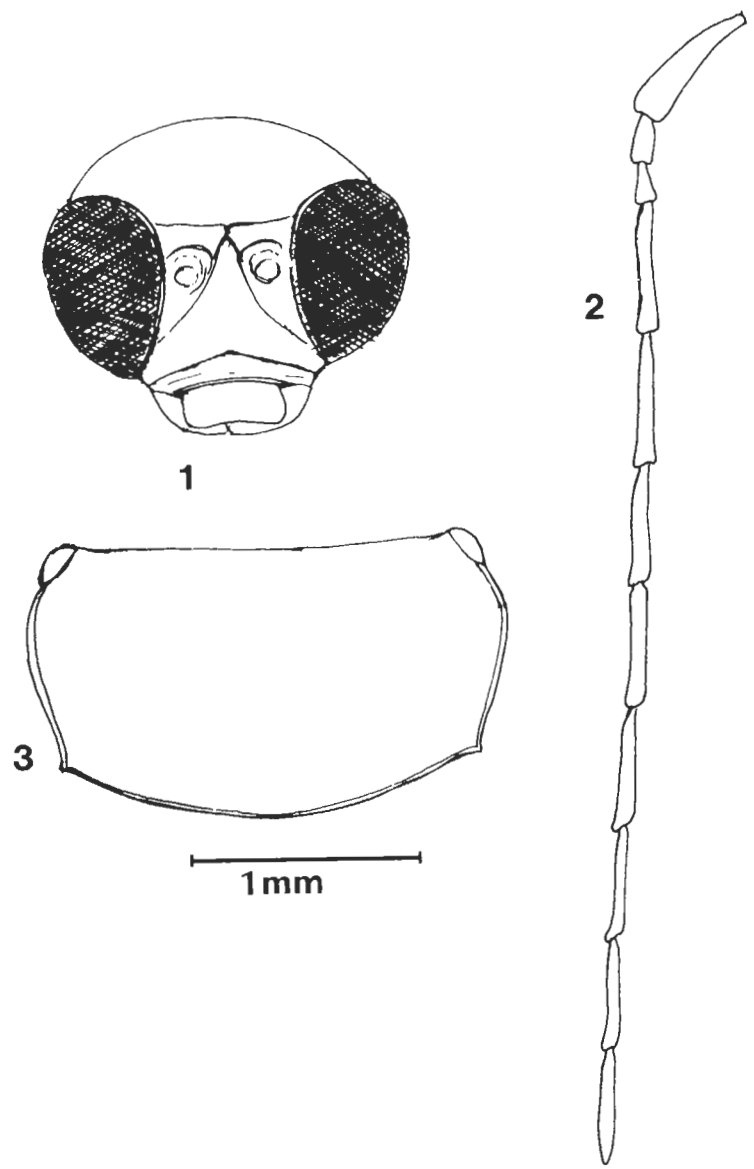
Description. - Body oblong elongate, yellowish-brown, except head black. Dorsal surface glabrous, shiny.

Head with vertex smooth; frontal tubercles triangular, moderately raised; clypeus broadly, triangularly raised; labrum dark brown, transverse, sparsely covered with long hairs; maxillary palpi filiform. Eyes large, the interocular space 0.8 times as broad as the transverse diameter of each eye. Antennae extended to the apical one-third of elytra; segment 1, longest, club-shaped; 2 and 3 shortest, as broad as long, subequal in length; 4 longer than segments 2 and 3 combined; 5-11 gradually shortened towards apex.

Pronotum transverse, 1.8 times as broad as long, broadest at apical one-third; disc convex, smooth, impunctate; anterior border unmargined, lateral and posterior borders margined; anterior margin straight, posterior margin rounded posteriorly; angles with seta-bearing pore. Procoxal cavities closed posteriorly. Scutellum triangular, as broad as long.

Elytra subparallel-sided, broadened posteriorly, rounded at apex; disc with traces of longitudinal lines, moderately densely covered with small punctures, the interstices twice as broad as the diameter of each puncture; epipleuron broad, suddenly narrowed in the middle. Legs, with the first segment of metatarsus one-half as long as metatibiae, nearly twice as long as the rest of segments of metatarsus combined; metatibiae with a long spine at apex; tarsal claws appendiculate. Ventral surface densely covered with hairs. Abdomen with apical sternite entire, pointed at apex. Pygidium exposed, pointed at apex. Length 4.5-5.2 mm. Male. Unknown.

Remarks. - *Monolepta impressicollis* Jacoby resembles the new species, but differs in having the head entirely yellowish brown, the pronotum 1.5 times as broad as long, parallel-sided, transversely depressed and with the posterior border oblique towards lateral sides.



Figs 1-3. *Monolepta tiomanensis*, new species. 1. Head (front view); 2. Antenna; 3. Pronotum.

The all-female samples of the *Monolepta tiomanensis,* new species, could probably due to the parthenogenesis. But, further study has to be carried out to provide evidence of this phenomenon. Presently, there are eleven species from the Chrysomelidae that have been reported with evidence of the parthenogenesis (Furth, 1994).

Trichobalya tiomanensis, new species

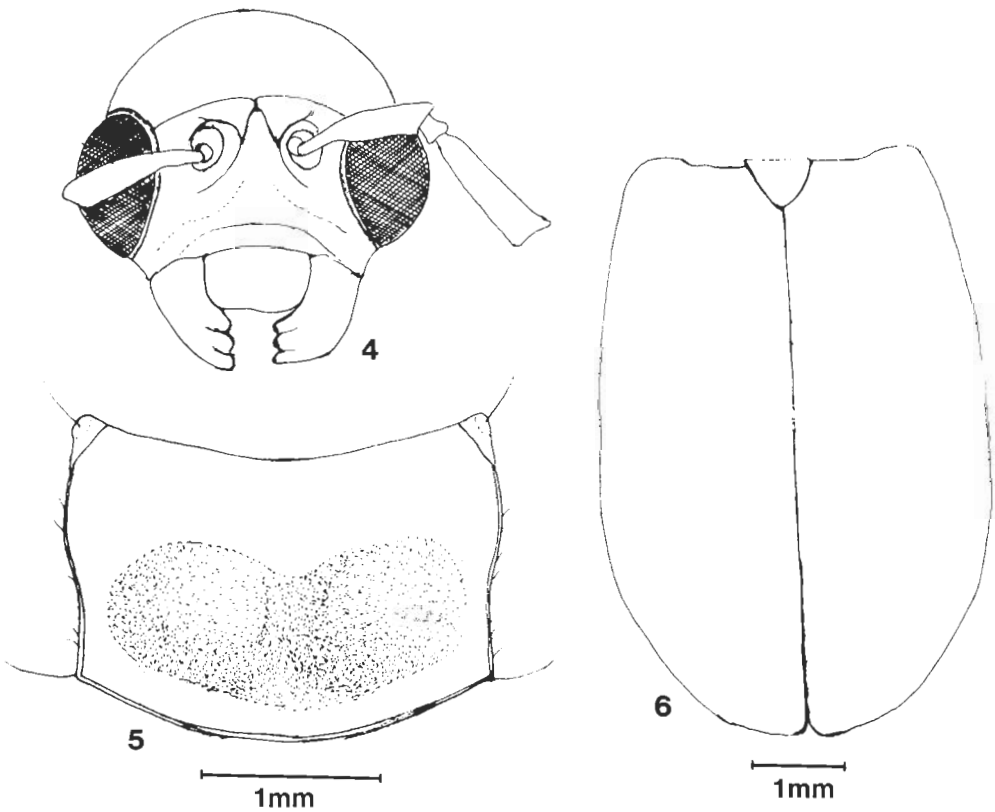
(Figs. 4-6)

Material examined. - Holotype - male, Pulau Tioman, Pahang, Malaysia, coll. Zaidi, Ismail & Ruslan, 6-9 Jun.1990.

Paratypes - 3 males, 3 females, Pulau Tioman, Pahang, Malaysia, coll. Zaidi, Ismail & Ruslan, 6-9 Jun.1990; 1 male, 2 females coll. Yusof, Jaiunuddin & Mahbob, 27-31 Aug.1991; 1 male, 4 females, coll. Zabidi, Sham & Razali, 22-28 Apr.1993; 2 males, coll. Zabidi, Saiful & Kamaruddin, 8-13 May.1993; 1 male, coll. Ismail & Jasmi, 16 Aug.1994; 3 males, 2 females, coll. Salleh, Ismail & Ruslan, 3-5 May.1995.

Duplicates of the paratype specimens (male and females) will be deposited at the Bishop Museum, Honolulu and the Natural History Museum, London.

Description. - Body oblong elongate, generally brownish, with abdomen and ventral surface black. Dorsal surface, with elytra densely covered with hairs.



Figs 4-6. *Trichobalya tiomanensis*, new species. 4. Head (front view); 5. Pronotum; 6. Elytra.

Head with vertex moderately convex, densely covered with fine hairs; frontal tubercles triangular, moderately raised, alutaceous; clypeus triangularly raised; labrum transverse, truncate, sparsely covered with long hairs; mandibles large, black at apices; maxillary palpi long, with penultimate segment swollen, the apical small, conical. Eyes small, the interocular space 2.2 times as broad as the transverse diameter of each eye. Antennae very long, reaching the apex of elytra, with three apical segments dark brown; segment 1 club-shaped, as long as 4; 2 shortest, as broad as long; 3 four times longer than 2; 4-11 gradually shortened towards apex.

Pronotum oblong, 1.4 times as broad as long, broadest at apical one-third; disc smooth, impunctate, deeply bifoveolate; anterior border unmargined, the lateral and posterior borders margined; anterior margin concave, posterior margin broadly rounded, sinuate in middle; sides broadened at apical half, then narrowed towards base; lateral margins with rows of hairs; angles with seta-bearing pore. Procoxal cavities closed posteriorly. Scutellum dark brown, triangular, covered with very fine hairs.

Elytra brown with apical extreme black, subparallel-sided, rounded at apex, densely covered with hairs; sutural area behind scutellum strongly depressed; disc rugose, with punctures moderately large, arranged in rows, the interstices strongly raised from the base to the middle of elytra, forming longitudinal ribs; epipleuron broad, gradually narrowed towards apex. Legs yellow, except the pro-, meso and metacoxae, part of the meso- and metafemora black; metatibiae with a spine at apex; protarsus with the first segment with pad on ventral surface; metatarsus with the first segment longer than the rest segments combined; tarsal claws appendiculate. Ventral surfaces densely covered with hairs; meso- and metasternum, abdomen black. Apical sternite trilobed, the median lobe transverse. Pygidium exposed, black, densely covered with hairs, rounded at apex. Length 7.0-8.2 mm.

Female. Apical sternite entire. Pygidium pointed.

Remarks. - *Trichobalya melanocephala* (Jacoby) resembles the new species, but differs in having the head and pronotum reddish, the elytra dark green and the ventral surface reddish brown, the elytral ribs, distinct from the base towards apex, and the sutural area behind scutellum not depressed.

A list of galerucine beetle species recorded from Tioman is given below:

1. *Aplosonyx sumatrensis* (Jacoby), 3 specimens
2. *Aulacophora atripennis* (Fabricius), 20 specimens
3. *Aulacophora indica* (Gmelin), 9 specimens
4. *Aulacophora lewisii* Baly, 1 specimen
5. *Cassena collaris* (Baly), 5 specimens
6. *Coeligetes wilcoxi* Mohamedsaid, 1 specimen
7. *Dercetina* sp., 2 specimens
8. *Hoplasoma unicolor* (Illiger), 6 specimens
9. *Hoplosaenidea malayensis* (Jacoby), 14 specimens
10. *Hoplosaenidea subcostata* (Jacoby), 1 specimen
11. *Hyphaenia discoidalis* Jacoby, 1 specimen, new record for Peninsular Malaysia
12. *Hyphaenia* sp., 3 specimens
13. *Liroetis* sp., 3 specimens
14. *Microlepta pallida* Jacoby, 6 specimens
15. *Monolepta laticornis* Jacoby, 6 specimens
16. *Monolepta nigripes* (Olivier), 73 specimens
17. *Monolepta terminata* Guerin-Meneville, 125 specimens

18. *Monolepta tiomanensis*, new species, 29 specimens
19. *Palpoxena laeta* Baly, 7 specimens
20. *Polexima monstrosa* (Jacoby), 5 specimens
21. *Pyrrhalta hageni* (Jacoby), 3 specimens
22. *Pseudeustetha hirsuta* (Jacoby), 16 specimens
23. *Pseudocophora distincta* Baly, 4 specimens, new record for Peninsular Malaysia
24. *Strobiderus pygidialis* (Jacoby), 2 specimens, new record for Peninsular Malaysia
25. *Theopea impressa* (Fabricius), 181 specimens
26. *Theopea nigricollis* Jacoby, 1 specimen
27. *Trichobalya tiomanensis*, new species, 23 specimens
28. *Xenoda spinicornis* Baly, 5 specimens

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