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## TWO NEW SPECIES OF THE GENUS *PLAUTIA* STÅL (HETEROPTERA: PENTATOMIDAE) FROM THE MALAYAN SUBREGION

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Revision of the genus *Plautia* Stål from the Malayan subregion includes four species of which two are new to the science. The genus *Plautia* is redescribed with special reference to most reliable characters like metathoracic scent apparatus and male and female genitalia. A key to the species is also provided.

**Key words:** Malayan subregion, Heteroptera, Pentatomidae, *Plautia*.

### Introduction

Despite a large volume of literature dealing with the systematics of Oriental Heteroptera, only occasional description of pentatomids from the Malayan subregion have been produced [1-4]. In the process of revising the genus *Plautia* Stål from the Malayan subregion, thirteen specimens were recognized, belonging to two new species. These species not only differ from the other known species of *Plautia* from the Malayan subregion but also differ significantly from the other regions too. Study material was mostly obtained from the Natural History Museum, London (NHM) and the Oxford University Museum (OUM). Type specimens were also obtained from the Rijksmuseum van Natuurlijke Historie, Leiden (RK) and the Institut für Pflanzenschutzforschung Kleinmachnow, Berlin (IP). Male specimens were boiled in water for 2-3 mins to allow the safe removal of pygophore. The aedeagus was inflated using the technique described by Ahmad [15]. The abdomens of female specimens were excised, boiled in 10% potassium hydroxide solution for 4-6 mins and then washed thoroughly in water. The spermatheca was dissected out under a WILD M8 Stereomicroscope. The abdomen was then dried and reattached to the specimen using insect body cement. All drawings were made using a WILD TYP-Drawing attachment. Dissected genitalia were stored in microvials containing a drop of glycerine. All measurements are given in millimetres.

### Experimental

*Plautia* Stål: Body ovate, olivaceous green. Head broader than long, lateral margins sinuate, apex rounded; clypeus equal to paraclypei. Anterior pronotal angles with spine or tooth-like projection; humeral angles rounded or subrounded. Scutellum at least as broad as long, apical lobe rounded. Connexiva slightly to moderately exposed at repose. Ostioles pyriform, open anteriolaterad to the metacoxae; peritremal discs distinctly large with shallow and smooth peritremal grooves;

evaporative areas extensive, covering 3/4 of the meta- and 1/3 of mesopleura; microflakes of 4-6 µm in size, interconnected by 4-5 cuticular ridges.

**Female genitalia.** 1st gonocoxae somewhat triangular, distinctly separated; 8th paratergites triangular; 9th paratergites equal to or longer than 8th paratergites. Spermathecal bulb either small, knot-like or narrow elongate; pump region with large distal and proximal flanges.

**Male genitalia.** Pygophore possesses dorso-lateral and inner processes. Paramerer blades with acute or subacute apices, stems short. Aedeagus with one or two pairs of conjunctival appendages.

**Distribution.** Oriental and Australasian Regions.

**Type species.** *Plautia fimbriata* (Fabricius)

### KEY TO SPECIES

1. Apical lobe of scutellum prominent and pale green .....2  
– Apical lobe of scutellum not prominent, green.....3
2. Spermathecal bulb with a single process, median dilation narrow, ribbon-like...(Fig.2e).....*P. southwoodi*  
– Spermathecal bulb with two processes, median dilation broad, balloon-like...(Fig.1e).....*P. gunongi*
3. Anterior angles of scutellum dark brown, pygophore convex posteriomedially .....*P. fimbriata*  
– Anterior angles of scutellum olivaceous green, pygophore concave posteriomedially.....*P. viridicollis*

### *Plautia gunongi* sp. Nov. (Figs. 1a -1j)

**Colour.** Body dorsally green. Head glossy, green; inner angles of eyes pale green; eyes blackish-brown, ocelli brown. Pronotum green with minute, sparse, brown punctures. Scutellum green with apical lobe pale green. Corium of hemelytra ochraceous green; membrane ochraceous brown. Abdomen brown. Body ventrally yellowish-green. Labium and antennae green. Thorax yellow; legs green. Abdominal disc yellowish-brown.



**Structure.** Lateral margins slightly sinuate medially, apex rounded; rostrum passing mesocoxae. Anterior pronotal angles subacute with small, tooth-like projection; humeral angles subrounded. Scutellum slightly broader than long. Membrane of hemelytra slightly passing apex of abdomen. Peritremal discs straight, broad, basally, tapering abruptly at the apex; peritremal grooves orientated posteriolaterally.

**Female genitalia.** 1st gonocoxae with subrounded posteriomedial angles; triangulin and arcus fused medially; 8th paratergites large, with acute angles; 9th paratergites broad basally, narrow apically, longer than 8th paratergites. Spermathecal bulb small, cap-like with two small processes; pump region cylindrical with funnel-shaped distal and proximal flanges; distal spermathecal duct shorter than proximal spermathecal duct; median dilation balloon-like.

**Male genitalia.** Pygophore broader than long, slightly concave anteriomedially; dorsolateral lobes prominent, curved inwards inner processes small; proctiger subrounded. Paramere blades comma-shaped, with subacute, highly sclerotized apices. Aedeagus with dorsolateral and ventral conjunctival

appendages; vesica small, slender, just reaching apices of the dorsal conjunctival appendages.

♀ = 8.2 mm long, 4.5 mm wide

♂ = 7.8 mm long, 4.5 mm wide

**Remarks.** In having almost same colour and size, *Plautia gunongi* appears a close ally of *Plautia southwoodi*. However, characters such presence of two finger-like processes on spermathecal bulb, balloon-like median dilation, comma shaped paramere blade clearly differentiate *P. gunongi* from *P. southwoodi*.

**Material examined.** Holotype ♂, Malaysia, Mt. Kinabalu, alt. 3000 ft, 22-ix-1913, NHM. Paratype 2 ♂ 1 ♀, 19-ix-1913, NHM; 1 ♀ Sarawak, Gunong Mult. Nat. Park, J.D. Holloway, RGS Mulu expd., 17-v-1978, NHM.

*Plautia southwoodi* sp. No. (Figs. 2a-2j)

**Colour.** Body dorsally green. Head green; eyes dark brown; ocelli blackish-brown. Pronotum green with lateral

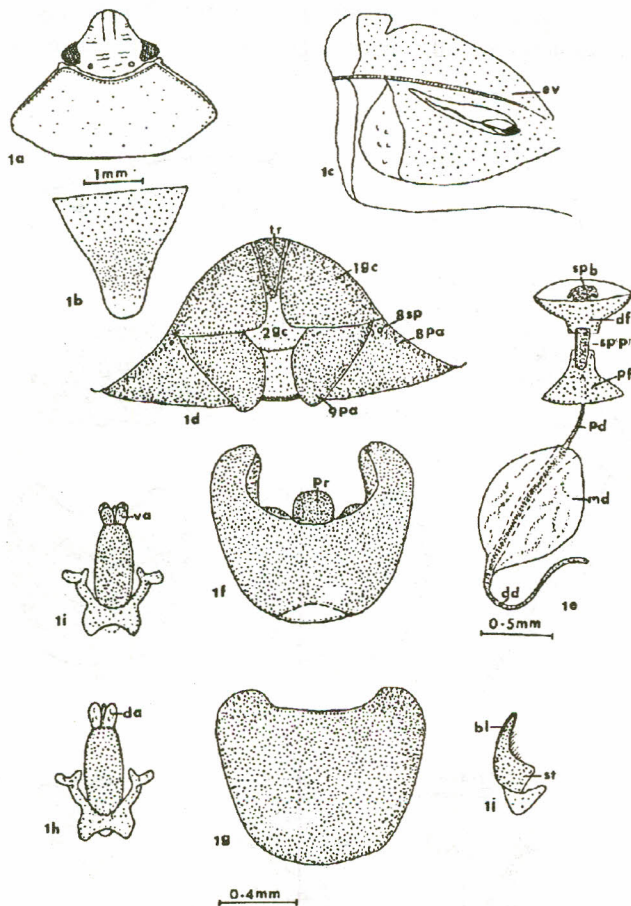


Fig. 1. *P. gunongi* sp. Nov. (1a) head & pronotum, (1b) scutellum, (1c) methathoracic external scent apparatus, (1d) female terminalia, (1e) spermatheca, (1f) dorsal view of pygophore, (1g) ventral view of pygophore, (1h) dorsal view of aedeagus, (1i) ventral view of aedeagus, (1j) paramere.

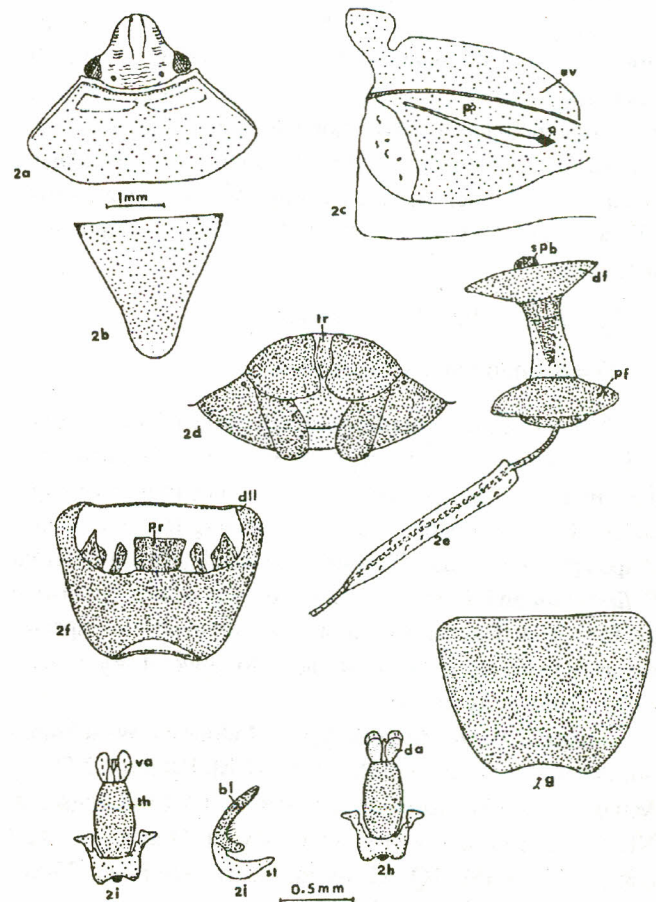


Fig. 2. *P. southwoodi*. (2a) pronotum, (2b) scutellum, (2c) methathoracic external scent apparatus, (2d) female terminalia, (2e) spermatheca, (2f) dorsal view of pygophore, (2g) ventral view of pygophore, (2h) dorsal view of aedeagus, (2i) ventral view of aedeagus, (2j) paramere.



margins black, sparsely punctate, punctures brown; humeral angles yellowish-brown. Scutellum green, apical lobe glossy, pale green. Corium of hemelytra reddish-brown, costal border green; membrane ochraceous brown. Abdomen brown. Body ventrally yellowish-green. Labium yellowish-green with black tip; antennae and legs yellowish-green. Abdominal disc yellowish brown medially.

**Structure.** Lateral margins deeply sinuate in front of eyes, apex narrowly rounded. Anterior pronotal angles subacute; humeral angles rounded. Scutellum slightly broader than long. Membrane of hemelytra distinctly passing apex of abdomen. Peritremal disc very long, gradually tapering towards apex from the middle; peritremal grooves orientated antero-laterally.

**Female genitalia.** 1st gonocoxae convex posteriorly, sinuate medially; 8th paratergites with subacute angles; 9th paratergites lobe-like, longer than 8th paratergites. Spermathecal bulb very small, semicircular; pump region, extremely large, tubular with disk-like distal and proximal flanges; median dilation narrow, ribbon-like.

**Male genitalia.** Pygophore broader than long concave anteriorly; dorsolateral lobes curved and acute apically; inner process moderately developed; proctiger large, rectangular. Paramere blades narrow, elongate, with a lobe-like process. Aedeagus with small, dorsal conjunctival appendages; median penial lobes fused enclosing vesica; vesica narrow, tubular, note reaching apices of the dorsal conjunctival appendages.

♀ = 8.4 mm long, 5.2 mm wide

♂ = 8.1 mm long, 4.9 mm wide

**Remarks.** *Plautia southwoodi* differ from *Plautia gunongi* by having narrow, elongated peritremal discs, ribbon-like median dilation of spermatheca, form of female terminalia especially of 2nd gonocoxae and 9th paratergites, and sickle-shaped paramere blade. This species also clearly differs from *P. fimbriata* and *P. viridicollis* not only in colour but also in the form of aedeagus, pygophore and paramere. This species is named to honour Prof. Sir Richard Southwood, Vice chancellor, University of Oxford.

**Material examined.** Holotype ♂, Indonesia, West Sumatra, Padang, N.S. Raffles Museum, NHM. Paratype 2 ♂ 3 ♀ Malaysia, Kuala Lumpur, 9-iii-1922, Ex FMS Museum, NHM; 1 ♂, Burma, Tenass. Vall., Myitta, Doherty, Distant coll., 1911, NHM; 1 ♀, Malaysia, Negri Sembilan, 25-xii-1931, EX FMS Museum, NHM.

***Plautia fimbriata* (Fabricius) (Figs. 3a-3j)**

*Cimex fimbriatus* Fabricius [16]

*Pentatoma fimbriolatum* Herrich-Schaffer [17]

*Pentatoma crossota* Dallas [18]

*Pentatoma fimbriata* Dallas [18]; Stål [19]

*Rhaphigaster rufoviridis* Walker [13]

*Plautia crossota* Kirkaldy [20]

*Plautia fimbriata* Distant [21]; Ahmad *et al.* [22]; Gross [23]; Hasio *et al.* [24]; Ahmad [25]; [26]; Linnavouri [27].

*Plautia crossota* Kirkaldy 1909 [20]

**Colour.** Body dorsally olivaceous green. Head with central area purple; eyes brown with red tinge; ocelli red. Callosities brown. Hemelytra purple; membrane light brown. Body ventrally yellowish-green.

**Structure.** Lateral margins slightly sinuate in front of eyes, apex narrowly rounded. Anterior pronotal angles acute with small spines; humeral angles subrounded. Scutellum as long as broad. Peritremal discs tapering gradually from the middle; peritremal grooves orientated antero-laterally.

**Female genitalia.** 1st gonocoxae with inner margins straight, posterior margins sinuate, apices obtus; triangulin and arcus fused medially, moderately exposed; 2nd gonocoxae straight posteriorly; 8th paratergites with acute angles; 9th paratergites with outer margins sinuate, apices narrowly

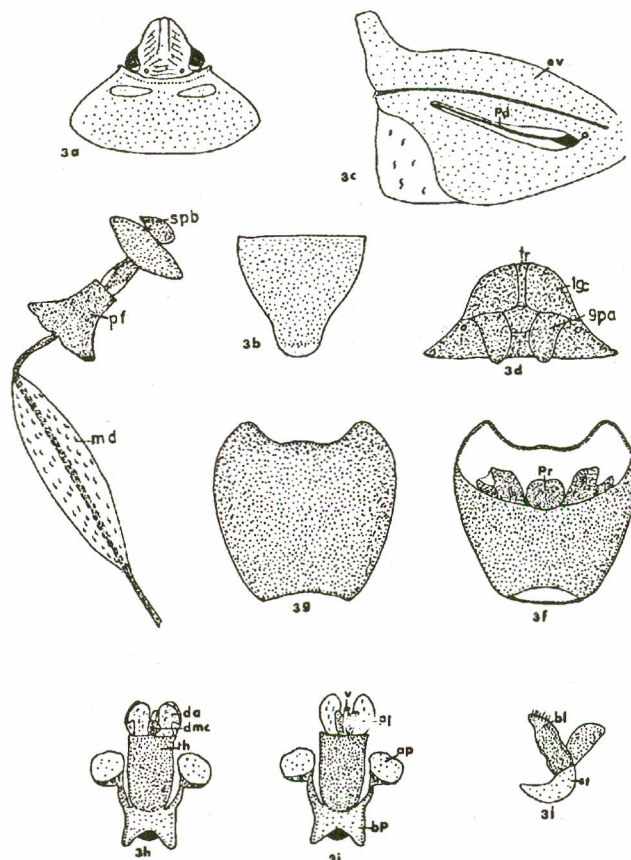


Fig. 3. *P. fimbriata*. (3a) head & pronotum, (3b) scutellum, (3c) methathoracic external scent apparatus, (3d) female terminalia, (3e) spermataeca, (3f) dorsal view of pygophore, (3g) ventral view of pygophore, (3h) dorsal view of aedeagus, (3i) ventral view of aedeagus, (3j) paramere.



rounded. Spermathecal bulb large, oval, produced on one side into a long, beak like process; pump region slender, slightly swollen with distinct distal and proximal flanges; median dilation elongate, balloon-like.

**Male genitalia.** Pygophore as long as broad, concave antero-medially, sinuate posteriorly; dorsolateral lobes small and stright; inner processes large; proctiger rounded, constricted postero-medially. Paramere blades with outer and inner margins sinuate. Aedeagus with a large dorsolateral and a small dorsomedial conjunctival appendages; median penial lobes fused, partly enclosing vesica short, not reaching apices of the dorsolateral conjunctival appendages.

♀ = 10.3 mm long, 6.1 mm wide

♂ = 9.9 mm long, 5.9 mm wide

**Remarks.** *Plautia fimbriata* differs from other species of the genus *Plautia* in colour and pattern, form of scutellum, peritremal disc, pygophore and paramere.

**Material examined.** Holotype ♂, "*Rhaphigaster rufroviridis* Walk.," NHM. Others 1 ♂ 1 ♀ Malaysia, Sarawak, R. Kapah trib. 8-x-1932, Oxford Univ. Exp., B.M. Hobby and A.W. Moore, NHM; 1 ♂ 2 ♀, Kuala Lumpur, Agric. Dept. coll., iv-1909, NHM; 1 ♀ Singapore, Ex Federated Malaya State Museum Collection, 1955, NHM; 2 ♀ India, Chikkabalapura, T.V. Campbell, 1930, NHM.

***Plautia viridicollis* (Westwood) (Figs. 4a-4j)**

*Pentatoma viridicollis* Westwood [14]

*Pentatoma inconspicua* Dallas [18]

*Plautia viridicollis* Distant [28]

**Colour.** Body dorsally green, sparsely punctate. Eyes blackish brown; ocelli brown. Apex of scutellum pale ochraceous. Hemelytra yellowish-brown, coarsely punctate. Abdomen violet. Body ventrally yellowish green medially, green laterally. Labium ochraceous brown with tip black; antennae green.

**Structure.** Lateral margins slightly sinuate, apex broadly rounded. Anterior pronotal angles with minute spine; humeral angles subrounded, scutellum broader than long. Membrane of hemelytra slightly passing apex of abdomen. Peritremal discs except oat the base of uniform thickness; peritremal grooves orientated posteriorly.

**Male genitalia.** Pygophore much broader than long, with anterior and posterior margins concave; dorsolateral lobes large, projected outwards; inner porcess well developed; proctiger convex apically. Paramere blades curved, acute apically, aedeagus with a pair of large, dorsolateral conjunctival appendages; median penial lobes fused enclosing vesica; vesica very small, slender, not reaching apices of dorsolateral conjunctival appendages.

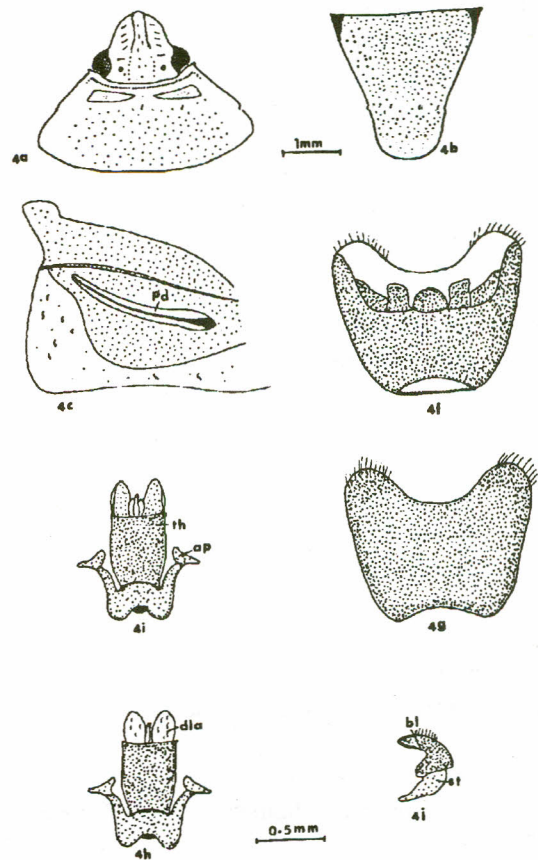


Fig. 4. *P. viridicollis*. (4a) head & pronotum, (4b) scutellum, (4c) methathoracic external scent apparatus, (4d) dorsal view of pygophore, (4e) ventral view of pygophore, (4f) dorsal view of aedeagus, (4g) ventral view of aedeagus, (4h) dorsal view of paramere, (4i) ventral view of paramere.

♂ = 7.5 mm long, 4.7 mm wide

**Remarks.** *Plautia viridicollis* differs from the closely related species, *Plautia fimbriata* not only in colour and size but also in the form of peritremal discs, aedeagus, paramere and the pygophore.

**Material examined.** Holotype ♂, Indonesia, Java, Distant coll. 1900, OUM. Others 1 ♂, Malaysia, Sarawak, Foot of Mt. Dulit, junction of rivers tinjar and Lejok, Oxford Univ. Exp., B. M. Hobby and A.W. Moore, 9-viii-1932, NHM.

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INDEX OF ABBREVIATIONS:

b1 = blade

da = dorsal conjunctival appendage

dd = distal duct  
 df = distal flange  
 dll = dorsolateral lobe  
 ev = evaporative area  
 1gc= 1st gonocoxae  
 2gc= 2nd gonocoxae  
 md = median dilation  
 o = ostiole  
 8pa= 8th paratergite  
 9pa= 9th paratergite  
 p = peritremal disc  
 pd = proximal duct  
 pf = proximal flange  
 Pr = proctiger  
 spb= spermathecal bulb  
 spp= spermathecal pump  
 8sp= 8th spiracle  
 st = stem  
 th = theca  
 tr = triangulin  
 va = ventral conjunctival appendage

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