

## *Anochetus maryatiae*, a New Species of Ponerinae (Hymenoptera: Formicidae)

(*Anochetus maryatiae*, Satu Spesies Baru daripada Ponerinae  
(Hymenoptera: Formicidae))

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### ABSTRACT

*Anochetus maryatiae*, a new species of Formicidae from the subfamily Ponerinae, tribe Ponerini from Ulu Gombak is described and illustrated. This ant genus was last studied in Malaysia by Brown in 1978. Observations were made on morphometric characters which included parameter measurements of total length, head length, head width, mandible length, scape length, antenna length, maximum eye length, oculomandibular distance, funicular length segment 1 to 4, pronotum width, propodeum height, petiole length, petiole height, dorsal petiole width, cephalix index and mandibular index. It was followed by a brief diagnosis, description of morphological structure, microsculpture, pilosity and discussion. Although it has resemblance with *Anochetus tua*, it could be easily distinguished from other species in having reticulate pronotum. This is the only species from Malaysia with such microsculpture on the pronotum. In addition to that, *A. maryatie* varies with *A. tua* in having smaller total length, less than 7.5 mm and lighter colour.

**Keywords:** *Ants; Anochetus; Formicidae; Malaysia; Ponerinae; Ponerini*

### ABSTRAK

Satu spesies baru Formicidae iaitu *Anochetus maryatiae* daripada subfamili Ponerinae dan tribus Ponerini yang dijumpai di Ulu Gombak telah dikenalpasti dan diperihalkan. Kali terakhir genus semut ini dikaji ialah pada tahun 1978. Pemerhatian dilakukan pada ciri-siri morfologi termasuklah ukuran-ukuran parameter jumlah panjangnya, panjang kepala, lebar kepala, panjang mandibel, panjang skap, panjang antena, panjang maksimum mata, jarak okulomandibel, panjang funikul pada segmen 1 hingga 4, lebar pronotom, ketinggian propodeum, panjang petiol, ketinggian petiol, lebar dorsal petiol, indeks cephaliks dan indeks mandibul. Ia diikuti oleh diagnosis ringkas, penghuraian struktur morfologi, mikroskulptur, pilositi dan perbincangan. Walaupun *A. maryatiae* seakan-akan serupa dengan *Anochetus tua*, ia boleh dibezakan daripada spesies lain kerana ia mempunyai pronotum yang retikulat. Ia merupakan satu spesies yang mengandungi mikroskulptur pada pronotum. Selain itu *A. maryatiae* berlainan dengan *A. tua* kerana *A. tua* mempunyai panjang badan yang lebih pendek iaitu kurang daripada 7.5 mm dan berwarna lebih cerah.

**Kata kunci:** *Anochetus; Formicidae; Malaysia; Ponerinae; Ponerini; semut*

### INTRODUCTION

Subfamilies of ants of the world have been reviewed and presented by a new synoptic classification of Formicidae which are divided into 21 extant and four extinct subfamilies (Bolton 2003). *Anochetus* Mayr 1861 belongs to the Ponerinae subfamily and these ants inhabit every tropical and subtropical region of the world, building their nests generally in fallen trunks, rotting logs, in soil or leaf litter. They are predacious on small invertebrates, using their trap-like jaws and sting to capture and subdue prey (Brown 1978; Shattuck & Barnett 2001). They are less frequently found in the open, compared to workers of its closely related genus, *Odontomachus*. If attacked their general response is to feign death (Taylor 2009). They utilize a trap-jaw mechanism to seize prey and to “jump” backwards. Eight species have been cited from Malaysia (Brown 1978) namely *Anochetus agilis* Emery 1901, *A. graeffei* Mayr 1870, *A. muzziolii* Menozzi 1932, *A. myops* Emery 1893, *A. princeps* Emery 1884, *A.*

*rugosus* Smith 1857, *A. strigatellus* Brown 1978 and *A. tua* Brown 1978. Brown’s work includes the most complete review of the genus, with a discussion on the taxonomy of every species and data on its biology. The objective of this study was to revive the research on this subfamily after Brown (1978). We expect to collect previously recorded species and some new species.

### MATERIALS AND METHODS

Samples were obtained from donation by Dr. Ito Fuminori from Kagawa University, Ikenobe, Japan. Using Brown’s key (1978), comparisons with the samples loaned from Museo Civico di Storia Naturale di Genova Italy, British Natural History Museum and resources from internet, Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA (Anon 2008) specimens were identified. Morphological terminology was also referred to

papers by Bolton (1994), Goulet & Huber (1993), Holdobler & Wilson (1990) and two entomology dictionaries by David & Gordon (2001) and Torre-Bueno (1978). The specimens (holotype and paratype) were deposited at the Center for Insect Systematics (CIS), UKM.

#### MEASUREMENTS

The samples were studied under a Carl Zeiss Stemi stereomicroscope which has up to 100× magnification. Observations were made on morphometric characters which included parameter measurements of total length (TL), head length (HL), head width (HW), mandible length (ML), scape length (SL), antenna length (AL), maximum eye length (EL), oculomandibular distance (OMD), funicular length segment 1 to 4 (f1, f2, f3, f4), pronotum width (PrW), propodeum height (PDH), petiole length (PL), petiole height (PH), dorsal petiole width (DPW), cephalix index (CI) and mandubular index (MI). For the definition of the measurement used, reader should consult Bakhtiar (2007), Bolton (1994), Brown (1978), De

Andrade (1994), Lattke (1986) and Ward (2001).

#### RESULTS

##### *ANOCHETUS MARYATIAE* NURUL AIDA & IDRIS, SP. NOV.

Materials examined: Holotype Worker. Malaysia, Selangor, Ulu Gombak, sp. 16, 13.i.2003, Fuminori, 1.

Paratype: Malaysia, Selangor, Ulu Gombak, sp. 16, 13.i.2003, Fuminori, 1.

Etymology: *maryatiae* is derived from the name of Prof. Datin Dr. Maryati Mohamed, an ANeT (International Network for Ant Research in Asia) President, and also for her contributions and expertise as ant taxonomist in Malaysia.

Diagnosis (worker): TL < 7.5 mm, HL+ML > 2.5; inner ventral margins of mandible with 3-4 serial spaced denticles; pronotum clearly reticulate, propodeum

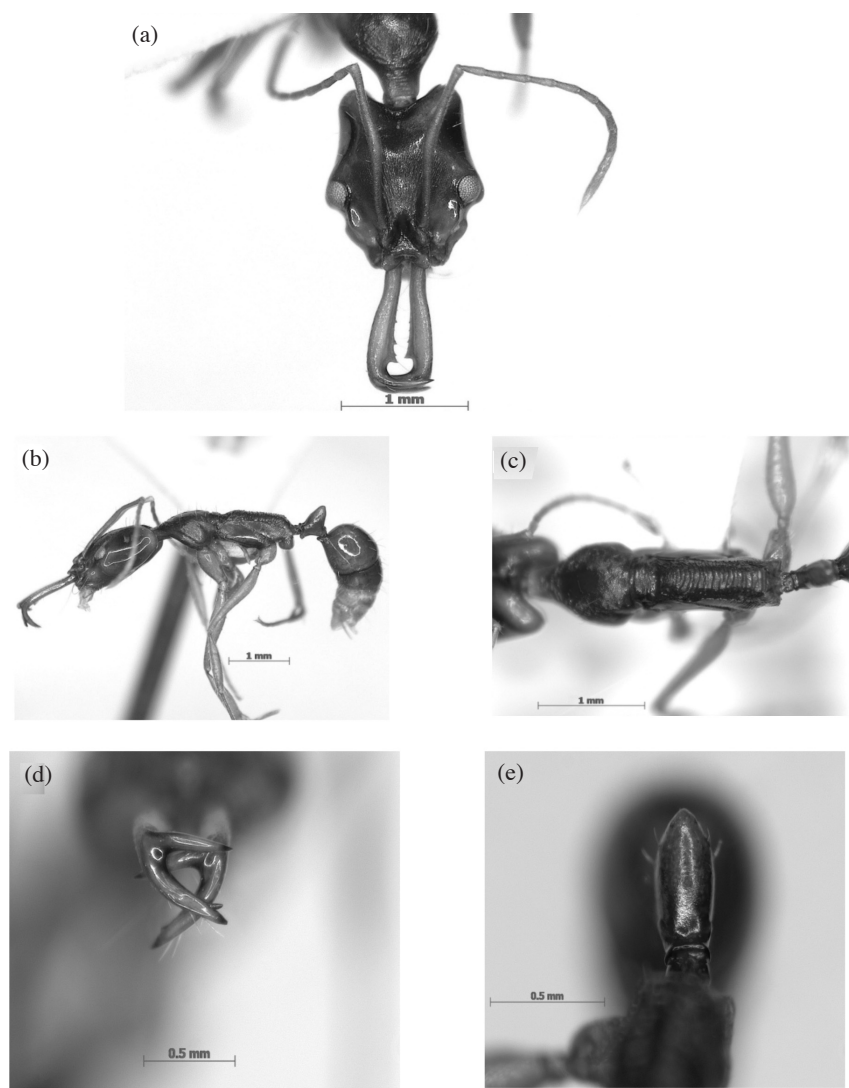


FIGURE 1. *A. maryatiae* sp. nov. a) head in full face view, b) trunk, petiole and base of gaster in profile, c) trunk in dorsal view, d) apical teeth in adaxial view and e) upper parts of petiole from front view

transversely rugulo-striate; anterior and posterior faces of the petiole smooth and shining, with fine punctures which associated with hairs.

Worker measurements: Holotype (Paratype n = 1), TL = 7.00 (7.04) mm, HL = 1.56 (1.61) mm, HW = 1.25 (1.32) mm, ML = 1.00 (1.06) mm, SL = 1.44 (1.50) mm, AL = 3.45 (3.45) mm, EL = 0.25 (0.27) mm, OMD = 0.54 (0.56) mm, LF1 = 0.21 (0.22) mm, LF2 = 0.15 (0.16) mm, LF3 = 0.19 (0.20) mm, LF4 = 0.20 (0.22) mm, PrWM = 0.81 (0.84) mm, PDH = 0.46 (0.46) mm, PL = 0.46 (0.46) mm, PH = 0.53 (0.57) mm, DPW = 0.26 (0.26) mm, CI = 80 (82), MI = 64 (66).

#### DESCRIPTION

Head, mesosoma and gaster brownish; legs lighter. Relatively big-sized species (refer ranges HW, HL and TL). Head in full face view longer than broad; widest across the eyes (Figure 2(a)). The head narrows posteriorly, with a pair of occipital lobes posterior. The eyes large and convex, filling more than half the length of the orbital fossa. Mandibles long and slender, broadest toward apices; mandible length less than head width; mandible length  $0.7 \times$  head length; inner dorsal margins of mandible straight and edentate, but inner ventral margins of mandible with 3-4 serial spaced denticles. Apical tooth sharp; dorsal apical tooth shorter than ventral apical tooth. Intercalary tooth of mandibular apex small, sharp and rising from the dorsal side of the ventral apical tooth well beyond its midlength (Figure 2(d)). Antennae long and slender from front view; scape surpasses posterior margins of occipital lobes of head an amount more than the length of the first funicular.

Pronotum and mesonotum convex from lateral view (Figure 2(b)). Mesonotal disc  $3.5 \times$  as wide as long. Mesonotum slightly lower than propodeum. Anterior dorsum propodeum convex weakly and straight towards posterior dorsum propodeum. Anteroventral mesopleurum margin has small lobes. Mesopleurum with complete transverse suture. Peduncle of petiole short. Petiolar node big and blunt at apex (Figure 2(e)), anterior slopes convex, posterior slopes convex and steep. Subpetiolar process anterior; with acute angled anteroventral. First gastric segment convex anteriorly, remaining tergum convex and sternum straight.

Coarse striation of vertex; frontal striation long, more  $\frac{1}{2}$  head length and weaker towards nuchal carina. Mandible smooth and opaque. Cervix transversely striate. Anterior pronotum rugulos inverted U-like in pattern, while pronotum and lateral disc margin coarse reticulate and opaque (Figure 2(c)). Promesonotum suture smooth and shiny. Mesonotum disc striate transversely, smooth and opaque. Propodeum transversely rugulo-striate. Mesopleurum smooth, shiny but with microsculpture at end posterior. Metapleurum weakly diagonal rugulo-striate. Petiolar node transversely weak rugulos in median and transversely striate. Legs half opaque and smooth. Gaster punctured weakly, smooth and shiny.

Head with less hair, short and erect. Mesial mandibel margin with 2 long hairs, 0.80-0.91 mm semi erect in basal and few short hairs along mesial margin. Pronotum moderate hairs, medium length and erect, mesonotum scarce hairs, medium length and erect, propodeum also with scarce hairs, short and semi erect. Petiole with little hair, short and semi erect. Gaster with less hair, short and semi erect. Pronotum hair length up to 0.14-0.20 mm and dorsum gaster up to 0.16-0.17 mm. Other parts with shorter hairs.

Queen: unknown.

Male: unknown.

Biology

Very little is known on this species. It nests in soil.

#### DISCUSSION

*Anochetus maryatia* was only found in Ulu Gombak, Selangor. It is easy to distinguish from its closely related species, *Anochetus tua* due to its reticulate pronotum. Moreover, *A. maryatia* is lighter in colour has smaller total length (TL). If we pass *A. maryatia* through the key of Brown (1978), we arrive at the *risii* group. Nevertheless it does not fit any of those species. *Anochetus maryatia* is placed within this group (Brown 1978) which includes mandibles each with distinct dorsal and ventral margins, the upper edentate (except for preapical angle), the lower one with small, serial, spaced teeth, or crenulate, or smooth. Intercalary tooth of mandibular apex arises from well beyond midlength of ventral apical tooth. Preapical angle usually well marked. Mesonotal disc with a blunt anterior rim, or none. Petiolar node pointed or narrowly rounded at apex. This group centered in South East Asia extending to the Philippines and mainland New Guinea.

The *risii* group in Malaysia includes three species (Brown 1978); *A. agilis* Emery 1901: very slender, elongate, CI < 83; pronotum smooth and shining over at least the large central part of its disc; *A. strigatellus* Brown 1978: center of vertex extensively striate, the striation extending to within 0.2 mm of the nuchal carina; petiolar apex narrowly rounded or nipple-like, not spiniform; *A. tua* Brown 1978: size large, combined length of head and closed mandibles (HL+ML) > 2.5 mm; frontal spread over a wide area of the central vertex, pronotum completely sculptured, indefinite rugulosity with shagreening, mostly U or V-like in pattern. *Anochetus maryatia* differs from *A. agilis*, *A. strigatellus* and *A. tua* by having a completely reticulate pronotum.

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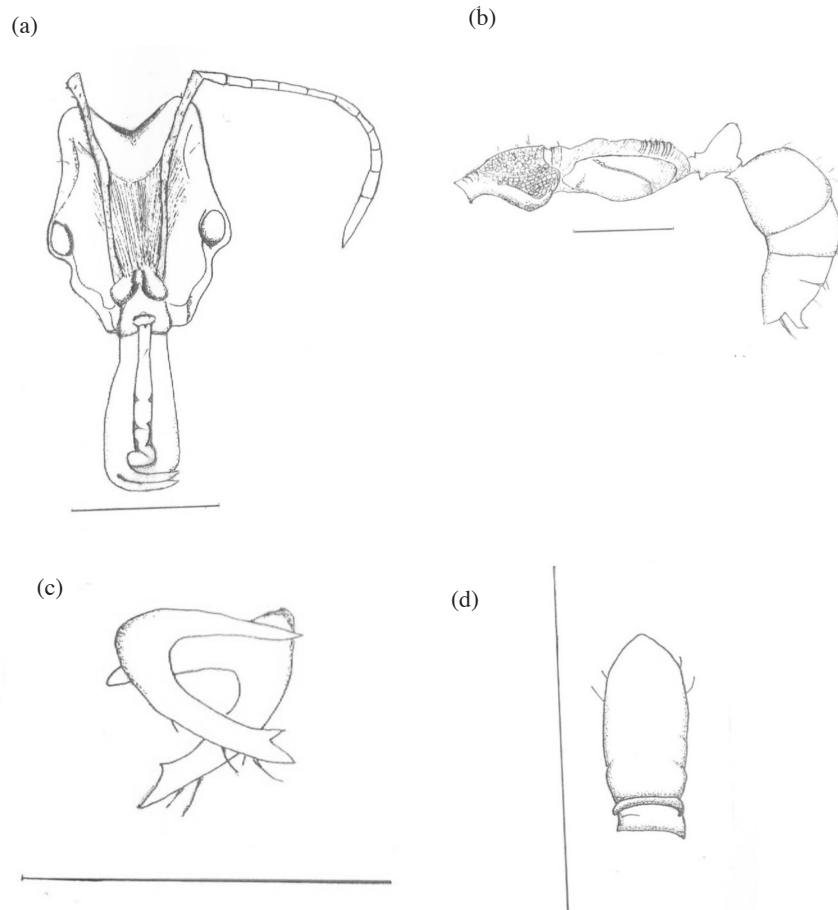


FIGURE 2. *A. maryatiaae* sp. nov. a) head in full face view, b) trunk, petiole and base of gaster in profile, c) apical teeth in adaxial view and d) upper parts of petiole from front view. (scale: 1mm)

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