

Serangga 13(1-2): 87-99

ISSN 1394-1530 © 2008, Centre for Insect Systematics, UKM & Department of Museums Malaysia

**NEW RECORDS OF GENUS *ANOCHETUS*
(HYMENOPTERA: FORMICIDAE: PONERINAE)
FROM MALAYSIA**

Nurul Aida, K.I. & Idris, A.B.

Centre for Insect Systematics,
Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, MALAYSIA

ABSTRACT

Three species of ants genus *Anochetus* were added to the previous record. They are *Anochetus incultus* Brown 1978, *Anochetus populatus* Brown 1978 and *Anochetus risii* Forel 1900.

Key words: *Anochetus*, Ponerinae, Formicidae, new record, Malaysia.

ABSTRAK

Tiga spesies semut genus *Anochetus* telah ditambah ke dalam rekod terdahulu. Semut-semut tersebut adalah dari spesies *Anochetus incultus* Brown 1978, *Anochetus populatus* Brown 1978 dan *Anochetus risii* Forel 1900.

Kata kunci: *Anochetus*, Ponerinae, Formicidae, rekod baru, Malaysia.

INTRODUCTION

Ants (Hymenoptera: Formicidae) are important, not only because of their diversity (Alonso & Agosti 2000), but also because of their functions in ecosystems, such as turning forest soil, dispersing seeds and helping with decomposition (Maryati 1996). Subfamilies of ants of the world was reviewed and presented by a new synoptic classification of Formicidae which are divided into 21 extant and four extinct subfamilies (Bolton 2003). *Anochetus* is one genus of poneromorph subfamilies, the Ponerinae, and they are primitive ants. This genus was first described by Mayr (1861); Type species, *Odontomachus ghilianii* Spinola by monotypy. *Anochetus* ants form small nests, usually with fewer than 100 workers, in soil, in termite nests or under logs. 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*.

Bolton (1995) had listed 95 species of *Anochetus* of the world with eight extinct species found in Dominican amber (Pionar 1992), aged estimated between 15 and 40 million years. This study was conducted with the aim to update list of *Anochetus* recorded in Malaysia, which was last studied back 30 years ago. Referring to Brown's extensive study (1978) and Bolton's catalogue (1995), there are at least eight species known from this country 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. This paper presents three additional records which gives a total of 11 species.

MATERIALS AND METHODS

The ant specimens studied were loaned from BORNEENSIS collection of the Universiti Malaysia Sabah, Malaysia, Prof. Seike Yamane's collection from Kagoshima University, Japan and donated by Dr. Ito Fuminori from Kagawa University, Ikenobe, Japan. These ants sampled from various forest habitats by using

Winkler's bag, transect and hand picking method. The use of combination of ant sampling methods was to ensure better results for evaluating ant species diversity than does any one sampling method (Watanasit 2003; Noon-anant *et. al.* 2005). Identification and species naming of the ants specimens were carried out based on keys given by Brown (1978), Forel (1900) and references to type specimens.

LIST OF NEW RECORDS

1. *Anochetus incultus* Brown 1978

(Figs. 1-4)

Anochetus incultus Brown, W.L., Jr., 1978. Contributions toward a reclassification of the Formicidae. Part VI. Ponerinae, trib Ponerini, subtribe Odontomachiti. Section B. Genus *Anochetus* and Bibliography. *Studia Entomol.(ns)* **20**:549-638. Type locality: PHILIPPINES: Luzon.

Material examined: Sabah, Crocker Range Park, Keningau, N 05° 25', E 116° 00', 650 asl, winkler's bag 7 T 1, 15-22.ii.2005, (Sukarman Sukimin), 1 worker; Danum Valley, Lahad Datu, winkler's bag, 19.IV.2003, (Noel Tawatao), 2 workers; winkler's bag, date not written on label, (Noel Tawatao), 9 workers.

Diagnostic: Deep reddish-brown in colour, smaller size; head length and mandible length $HL + ML < 2.2$ mm, frontal striation confined to the space between frontal carinae, entire pronotum disc sculptured, mandible edentate and its intercalary tooth reduced and situated near its apex, without propodeal spine, subpetiolar process in profile with an acute angle anteroventrally.

Remarks. This is a new record for Malaysia. This species was previously recorded from Philippines. We have compared the specimen with a paratype specimen from Luzon Philippines which was loaned from British Natural History Museum. All diagnosis is similar except the frontal striation is slightly longer compared to the type and the pronotum sculpture is more prominent.

However, these slight differences can be considered as variation and not in our opinion sufficient to distinguish a new species. Photos 1a, 1b, 1c and 1d showing different angles of *A. incultus*.

This species belongs to *risii* group. Material examined was loaned from BORNEENSIS, Universiti Malaysia Sabah (UMS), Malaysia and Prof. Seike Yamane's collection from Kagoshima University, Japan.

2. *Anochetus pupulatus* Brown 1978

(Figs. 5-8)

Anochetus pupulatus Brown, W.L., Jr., 1978. Contributions toward a reclassification of the Formicidae. Part VI. Ponerinae, tribe Ponerini, subtribe Odontomachiti. Section B. Genus *Anochetus* and Bibliography. Studia Entomol. (ns) **20**:549-638. Type locality: INDIA: Kerala.

Material examined: Selangor, Ulu Gombak, 26.x.1996, sp 4 F.Ito, 2 workers; Sabah, Crocker Range Park, Mahua, waterfall area, ca 1000 m alt, 5.xi.2000, *Anochetus spl* of SKY, H.Okido leg., 1 worker; Keningau, N 05° 25', E 116° 00', 650 asl, manual transect 1 S 9, 16-19.vi.2005, Sukarman Sukimin, 5 workers; Tawau Hills, 12.vii.1996, S.K. Yamane, 1 worker, K.Eguchi leg., *Anochetus myops*-group? *Subcoecus*, det S.K. Yamane 2007, 1 worker, Winkler's bag, 14-25.ii.2007, Lai & Hassan, 3 workers; Danum Valley, Lahad Datu, 1991/1992, Arthur CYC, 1 worker, date not written on label, Noel Tawatao, 1 worker; Sarawak, Miri, Old Tower R. canopy ecol, 22.i.1993, S.K Yamane leg., 1 worker.

Diagnostic: Light yellow in colour, very small in size, head length and mandible length $HL+ML < 1.50\text{mm}$, eyes very small, mesonotal disc > twice as wide as long, mesonotal suture shallowly impressed, mesonotal disc less than twice as wide as long and in lateral view it has thin and tapered to a sharp apex petiolar node, from front view petiole sides are vertical and only weakly convex; apical edge truncate and concave in the middle, leaving a sub-acute point on each side, with propodeal spine,

subpetiolar process in profile a simple lobe, without an acute anteroventral angle.

Remarks. This is a new record for Malaysia. This species was previously recorded from India. We have compared the specimen with its holotype photo from Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA through online database (Anon 2007). This species might be mistakenly identified as *A. myops* as they share many similar characters. The specimens also have been compared with *A. myops* holotype (Museo Civico di Storia Naturale di Genova, Italy) and we noted that *A. myops* certainly has deeply impressed mesonotal suture, mesonotal disc more than twice as wide as long and bluntly rounded petiolar node while the material examined has shallowly impressed suture, mesonotal disc less than twice as wide as long and in lateral view it has thin and tapered to a sharp apex petiolar node. Interestingly it may have slight variations for its petiole shape, if seen from front view. Photos 2a, 2b, 2c and 2d showing different angles of *A. populatus*.

This species belongs to *longifossatus* group. Material examined was loaned from BORNEENSIS, UMS and Prof. Seike Yamane's collection from Kagoshima University, Japan.

3. *Anochetus risii* Forel 1900

(Figs. 9-12)

Anochetus risii Forel, A., 1900. Les formicides de l' Empire des Indes et de Ceylon. Part VI J. Bombay Natur. Hist. Soc., **13**: 52-65. Type locality: CHINA: Hong Kong.

A. gracilis Karawajew, W., 1925. Ponerinen (Fam. Formicidae) aus dem Indoaustralischen Gebiet. Konowia, **4**: 276-296.

Material examined: Selangor, Ulu Gombak, 29.v.1999; sp17 F. Ito, 2 workers.

Diagnostic: Ferruginous yellow in colour, restricted frontal striation, pronotum striate or rugulose in front and around the side of disc, mandibles long with mandibles length (ML) >1.0mm,

mandibular index (MI) > 68, dorsal inner margin of mandible nearly straight, edentate and its intercalary tooth reduced and situated near its apex, has shorter peduncle of petiole and from front view the petiole is nipple-like, subpetiolar process in profile with an acute angle anteroventrally.

Remarks. This is a new record for Malaysia. This species was recorded from China, Vietnam and Indonesia. We have compared the specimen with *A. agilis* holotype (loaned from Museo Civico di Storia Naturale di Genova, Italy) which is closely related to it. The specimen examined is lighter in colour (yellowish brown), has shorter peduncle of petiole and the petiole is nipple-like which as per Brown's key and figures (1978) while the *A. agilis* holotype is darker in colour, has longer peduncle of petiole and the petiole is tapered gradually to apex. Its diagnosis matches the China and Java specimens but with bigger MI and relatively shorter scape. It is also slightly differ from the type specimen by having micro sculpture on the pronotum disc but the China samples are smooth and shining (Brown 1978). However, these slight differences can be considered as variation and not in our opinion sufficient to distinguish a different species. Photos 3a, 3b, 3c and 3d showing different angles of *A. risii*.

This species belongs to *risii* group. Material examined was generously donated by Dr. Ito Fuminori from Kagawa University, Ikenobe, Japan.

ACKNOWLEDGEMENT

We would like to express our gratitude to Prof. Dr. Datin Maryati Mohamed for her support and loaning the collections of BORNEENSIS, Universiti Malaysia Sabah and Dr. Bakhtiar Affendi Yahya, Mr. Sukarman Sukimin and Mr. Noel Tawatao for their help of this work. Special thanks extended to Museo Civico di Storia Naturale di Genova, Italy, British Natural History Museum, Prof. Seike Yamane (Kagoshima University, Japan), Dr. Ito Fuminori (Kagawa University, Japan), Dr. Rosli Hashim (Universiti Malaya) and Mr. Zabidi Yaakob (Faculty of Science and Technology, Universiti Kebangsaan Malaysia) for their kind

assistance in many ways. We would also thank the Government of Malaysia and MOSTI through grant 05-10-02-SF0128 and 05-01-02-SF0194.

REFERENCES

- Alonso, L.E. and Agosti D. 2000. Biodiversity studies, monitoring, and ants: An overview. In: *Ants: Standard Methods for Measuring and Monitoring Biodiversity* (Agosti D, Majer JD, Alonso LE and Schultz TR, eds), Smithsonian Institution Press, Washington, 1-8.
- Anon. 2007: <http://insects.oeb.harvard.edu/MCZ> [April 2008]
- Bolton, B. 1995. *A new general catalogue of the Ants of the World*. Harvard University Press, Cambridge, Massachusetts, USA.
- Bolton, B. 2003. Synopsis and classification of Formicidae. *Mem. Amer. Entomol. Inst.* **71**: 1-370.



Figs. 1-2: *A. incultus* worker, 1. head in full face view; 2. trunk, petiole and gaster in lateral view



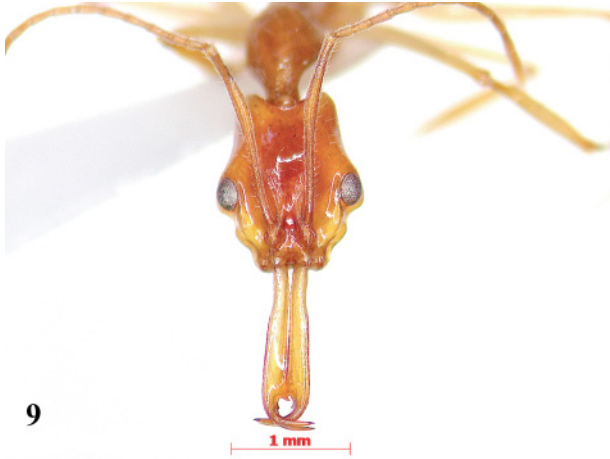
Figs. 3-4 *A. incultus* worker, 3. apical teeth in adaxial view and 4. front view of upper parts of petiole.



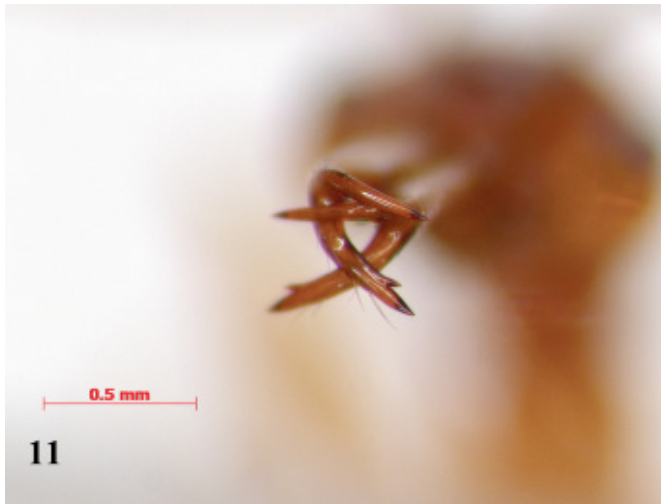
Figs. 5-6 *A. pupulatus* worker, 5. head in full face view; 6. trunk, petiole and gaster in lateral view



Figs. 7-8 *A. populatus* worker, 7. apical teeth in adaxial view, 8. front view of upper parts of petiole.



Figs. 9-10 *A. risii* worker, 9. head in full face view; 10. trunk, petiole and gaster in lateral view



Figs. 11-12 *A. risii* worker, 11. apical teeth in adaxial view, 12. front view of upper parts of petiole.