

A Sibling Species of *Odontomachus rixosus* Smith, 1857 (Hymenoptera: Formicidae) from Malaysia

Mamoru TERAYAMA¹⁾ and Fuminori ITO²⁾

¹⁾ 2-12-29, Naka-cho, Iwatsuki-ku, Saitama, 339-0054 Japan

²⁾ Faculty of Agriculture, Kagawa University, 2393, Ikenobe, Miki-cho, Kita-gun, Kagawa, 761-0795 Japan

Abstract A trap jawed ant *Odontomachus pararixosus* sp. nov., which is closely related to *O. rixosus* Smith, 1857, is described based on the worker caste from Peninsular Malaysia.

The genus *Odontomachus* Latreille, 1804 (subfamily Ponerinae) contains large-sized ants and is comprised of 66 species mostly distributed in tropical and subtropical areas of the world. *Odontomachus rixosus* Smith, 1857, is a member of the *rixosus* species group which includes six other species, namely, *O. latidens* Mayr, 1862, *O. monticola* Emery, 1892, *O. kuroiwae* (Matsumura, 1912), *O. circulus* Wang, 1993, *O. xizangensis* Wang, 1993, and *O. fulgidus* Wang, 1993 (Brown, 1976; Bolton, 1995; Yoshimura *et al.*, 2007). Those species are distributed from Japan, China, northern part of Indo-China to northeastern part of India except for *O. rixosus* and *O. latidens*. *Odontomachus rixosus* is distributed the Indo-China Peninsula, Malaysia, Singapore, Java, Sumatra and Borneo (Smith, 1857; Viehmeyer, 1916; Clawley, 1924; Wheeler & Wheeler, 1952; Brown, 1976; Bolton, 1995), and *O. latidens* is known from the Malay Peninsula, Java, Sumatra and Borneo. These two species are easily distinguished by several morphological features as shown in Brown (1976).

Odontomachus rixosus is polygynous, colonies have multiple dealate queens (Ito *et al.*, 1996). However, F. Ito has observed other biological form which is polygynous colonies with brachypterous queens.

Through a careful comparison, we have reached the conclusion that the brachypterous queen's form is closely related, but separable from the true *O. rixosus* by the external morphology of worker caste.

The following abbreviations and indices are used in this paper for descriptions.

HL, head length: maximum full-face view length from anteriormost margin of clypeus to occipital margin of head.

HW, head width: maximum dorsal view distance across head including eyes in full-face view.

SL, scape length: length of scape excluding radicle.

ML, mandible length: maximum length in full-face view between anterior-most point of head and apical-most point of mandible.

CI, cephalic index: HW/HL x 100.

SI, scape index: SL/HW x 100.

WL, Weber's length of alitrunk: maximum diagonal distance from base of anterior slope of pronotum to propodeal lobe.

PL, petiole length: maximum length of petiole in lateral view, measured from ventral juncture with propodeum to juncture with postpetiole or gaster.

PH, petiole height: maximum height of petiole in profile, measured perpendicularly from apex of petiolar node to venter of petiole.

DPW, petiole width: maximum width of petiole in dorsal view.

TL, total body length: outstretched length from mandibular apex to gastral apex.

Odontomachus pararixosus sp. nov.

(Figs. 1, 2)

Diagnosis. Among the *rixosus* species group, this species especially resembles *O. rixosus* in the long antennal scape (SI over 140), the long subapical tooth of mandible with truncate apex, the largely smooth vertex, and the gently convex anterior margin of petiolar node. However *O. pararixosus* is separated from *O. rixosus* by the almost straight posterior margin of head (weakly notched in *rixosus*), the acute triangular tip of petiole (needle-shaped in *O. rixosus*), the almost straight posterior margin of petiolar node (weakly concave in *O. rixosus*) and the presence of long suberect setae on 1st gastral tergite (absent in *O. rixosus*).

Description. Holotype. Worker. Structure: Head long, 1.46 times as long as wide, widest at level of eyes, with almost straight posterior margin in full-face view; posterior 1/3 of

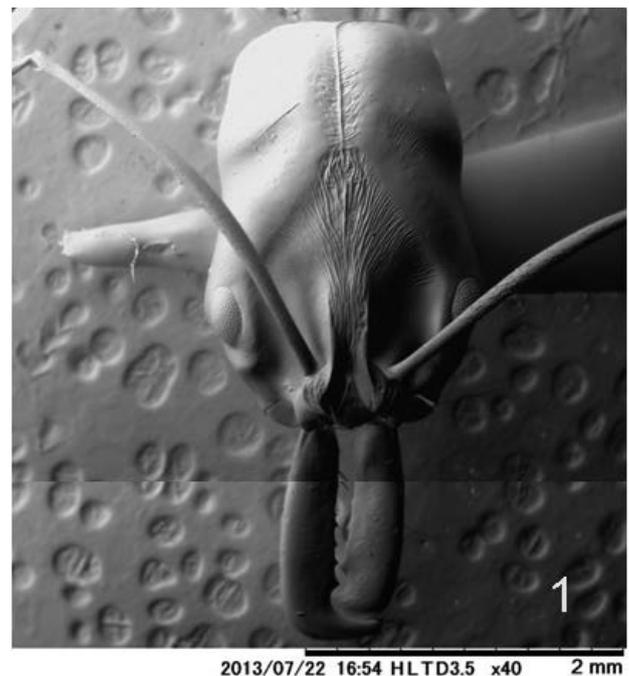
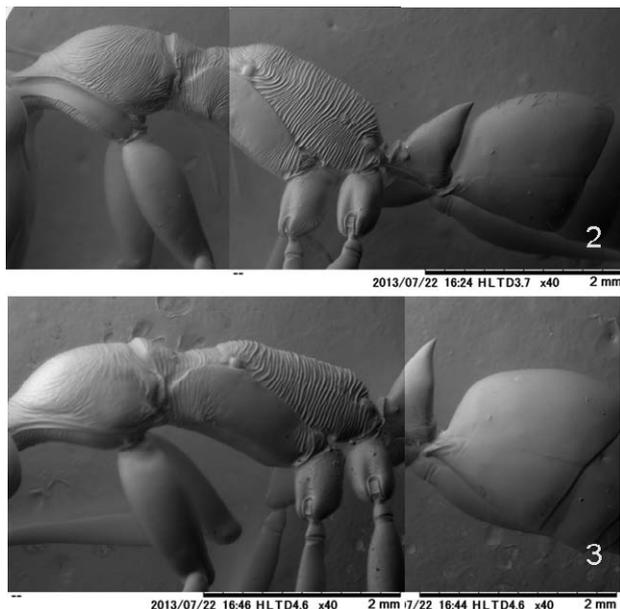


Fig. 1. *Odontomachus pararixosus* sp. nov.; worker, head, full-face view.



Figs. 2, 3. *Odontomachus pararixosus* sp. nov. (2) and *O. rixosus* Smith (3); worker, alitrunk and petiole, lateral view.

head tapering to the posterior most; posterodorsal corner rounded, not forming an angle; extraocular furrow gently incised. Mandible linear, shaft only weakly broaden anteriorly, dorsal margin with 6 small teeth of which anterior-most one is largest; apical portion with 3 teeth of which ventral one is longest; dorsal tooth rectangular, ca. 2.5 times as long as wide at midlength; intercalary tooth smallest. Clypeus small, with weakly convex anterior margin. Antenna long and slender: scape exceeding posterior margin of head by ca. 1/5 its length; 2nd segment 2.5 times as long as wide, 3rd to 11th segments each longer than wide, the ratio of 2nd to 5th segments about 5: 10.5 : 9 : 8 in length from the base; terminal segment 6.7 times as long as wide. Eye weakly convex, 0.38 mm in maximum diameter, and situated anterior 2/7 of head.

Dorsal outline of pronotum moderately convex; in dorsal view disc 1.13 mm in maximum width, 1.2 times as long as wide, with convex sides. Dorsal outline from mesonotum to anterior 1/4 of propodeum shallow v-shaped; posterior 3/4 of propodeal dorsum straight; posterolateral corner of propodeum dully angulate in profile.

Petiole higher than long, with acute triangular tip; anterior margin weakly convex, posterior margin almost straight; subpetiolar process developed, with convex ventral margin; in dorsal view, node 1.5 times as long as wide, widest at posteriormost. Gaster oval; 1st gastral tergite 1.24 mm in maximum width in dorsal view.

Sculpture: Frons of head with many thin longitudinal striae; vertex smooth and shining; maler space and genal area smooth and shining. Mandible smooth and shining. Antenna weakly microreticulate. Pronotum semicircularly striate; mesonotum with weak transverse striae; mesopleura smooth and shining excepting anterior and posterior portions weakly striate; propodeum with many transverse striae. Petiole smooth and shining. Gaster smooth and shining. Legs smooth.

Pilosity: Dorsum of head scattered with short erect pubescences; frons with a pair of long erect setae which are

ca. 0.25 mm in length; frontal lobe with a long erect seta which is ca. 0.20 mm in length. Dorsum of alitrunk and petiolar node with short decumbent pubescences and without distinct setae. First gastral tergite with moderately abundant long suberect setae which are 0.15–0.24 mm in length; 2nd to 5th terga with long erect to suberect setae. Antenna and legs with short pubescences.

Color: Head brown; alitrunk and petiole blackish brown; gaster brown; legs yellow; mandible brown; antenna yellow excepting scape brown.

Measurements (mm): Holotype; HL 2.58; HW 1.77; SL 2.64; ML 1.42; CI 69; SI 149; WL 3.50; PL 0.69; PH 1.07; DPW 0.42; TL 10.7. Paratype workers (n=10); HL 2.40–2.73; HW 1.62–1.91; SL 2.40–2.76; ML 1.40–1.49; CI 66–70; SI 142–151; WL 3.35–3.80; PL 0.64–0.72; PH 1.05–1.21; DPW 0.40–0.52; TL 10.1–11.2.

Holotype. Worker, Ulu Gombak, Malaysia, 29.viii.2009, F. Ito leg. [FI109-83].

Paratypes. All the locality is the same as holotype: 5 workers, 10.iii.1999, F. Ito leg. [FI99-133]; 15 workers, 12.iii.1999, F. Ito leg. [FI99-138]; 2 workers, 9.vi.1999, F. Ito leg. [FI99-251]; 1 worker, 14.xii.2004, F. Ito leg. [FI04-29]; 2 workers, 20.xii.2004, F. Ito leg. [FI04-127]; 1 worker, 21.xii.2004, Y. Ikeshita leg.; 1 worker, 22.xii.2004, Y. Ikeshita leg.; 9 workers, 29.viii.2009, F. Ito leg. [FI09-83]; 3 workers, 30.viii.2009, F. Ito leg. [FI09-91]; 1 worker, 31.viii.2009, [FI09-93]; 9 workers, 1.ix.2009, F. Ito leg. [FI09-107]; 1 worker, 16.iii.2011, F. Ito leg. [FI11-80]; 4 workers, 27.iii.2012, F. Ito leg. [FI12-43].

Type depository. The holotype and some paratypes are deposited in the National Institute for Agro-Environmental Sciences, Tsukuba, Japan, and other paratypes are in the Bogor Zoological Museum, Cibinong, Indonesia, and Thailand National Science Museum, Khlong Luang, Thailand.

Etymology. The specific epithet *pararixosus* is a compound word meaning 'similar to rixosus'.

Remarks. This species inhabits the forests, and nests in rotten woods or under accumulations of leaf litter. Colonies has brachypterous queens and no dealate queens were found (Ito, in prep).

Acknowledgements

We thank Rosli Hashim for his kind help during the research of ants in Ulu Gombak. This work was partly supported by Grants-in-Aid for Scientific Research from JSPS (leader, FI, Nos. 14405036, 24405010).

References

- Bolton, B., 1995. A new general catalogue of the ants of the world. 504 pp. Harvard University Press.
- Brown, W. L., Jr., 1976. Contributions toward a reclassification of the Formicidae. Part VI. Ponerinae, tribe Ponerini, subtribe Odontomachiti. Section A. Introduction, subtribal characters, Genus *Odontomachus*. *Studia Ent.*, **19**: 67–171.
- Crawley, W. C., 1924. Ants from Sumatra. *Ann. Mag. Nat. Hist., Ser. 9*, **13**: 380–409.
- Ito, F., N. R. Yusoff and A. H. Idris, 1996. Colony composition and queen behavior in polygynous colonies of the Oriental

- ponerine ant *Odontomachus rixosus* (Hymenoptera Formicidae). *Ins. Soc.*, **43**: 77–86.
- Smith, F., 1857. Catalogue of the hymenopterous insects in the collected at Sarawak, Borneo: Mount Ophir, Malacca; and at Singapore, by A. R. Wallace. *J. Proc. Linn. Soc. Lond. Zool.*, **2**: 42–88.
- Viehmeyer, H., 1916. Ameisen von Singapore. Beobachtet und gesammelt von H. Overbeck. *Arch. Naturgesch.*, (A) **81**(8): 108–168.
- Wheeler, G. C. & J. Wheeler, 1952. The ant larvae of the subfamily Ponerinae – Part II. *Amer. Mid. Nat.*, **48**: 604–672.
- Yoshimura, M., K. Onoyama and K. Ogata, 2007. The ants of the genus *Odontomachus* (Insecta: Hymenoptera: Formicidae) in Japan. *Species Diversity*, **12**: 89–112.

[Received: February 6, 2014; accepted: August 25, 2014]