

Taxonomy of the ant genus *Odontomachus* Latreille (Hymenoptera: Formicidae) from China with descriptions of a new species and a new record species

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Abstract: The taxonomy of the ant genus *Odontomachus* Latreille, 1804 from China is discussed. A new species, *Odontomachus goumang* **sp. nov.**, is described. *Odontomachus simillimus* is recognized as a new record species in China. *Odontomachus goumang* **sp. nov.** can be easily distinguished with other *Odontomachus* species in China by the large size (HL 3.55–4.02 mm), and the distinctly convex propodeal dorsum. A key to the worker caste of Chinese species of *Odontomachus* is provided.

Key words: Ponerinae; taxonomy; key

中国大齿猛蚁属分类及一新种和一新记录种记述（膜翅目：蚁科）

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摘要: 对中国已知的大齿猛蚁属物种进行了分类整理, 记述了 1 新种: 句芒大齿猛蚁 *Odontomachus goumang* **sp. nov.**, 以及 1 中国新记录种: 相似大齿猛蚁 *Odontomachus simillimus*。句芒大齿猛蚁可通过其大体型（头长 3.55~4.02 mm）与隆起的并胸腹节基面同国内其他大齿猛蚁物种明显区分。文中还提供了中国大齿猛蚁属分种检索表。

关键词: 猛蚁亚科; 分类; 检索表

Introduction

The genus *Odontomachus* Latreille, 1804 is a kind of trap-jaw ant, comprising 79 valid extant and 3 fossil species to date (Bolton 2024), which is widely distributed in tropical and subtropical regions, with its highest species numbers in the Neotropics and Malesia (Brown 1976). However, the taxonomy of *Odontomachus* is still far from completion in Southeast Asia (Satria *et al.* 2015). China stretches across vast area covering the tropical, subtropical, temperate and frigid zones, but only eight species of *Odontomachus* are recognized: *O.*

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circulus (Wang, 1993), *O. fulgidus* (Wang, 1993), *O. granatus* (Wang, 1993), *O. monticola* (Emery, 1891), *O. rixosus* (Smith, 1857), *O. silvestrii* (Wheeler, 1927), *O. xizangensis* (Wang, 1993) and *O. linearis* (Chen & Zhou, 2018). In this paper, a new species, *Odontomachus goumang* **sp. nov.** from Guangxi, China is described. A species, *Odontomachus simillimus* from Hainan, China, is recognized as a new record species. A key to the worker caste of Chinese species of *Odontomachus* is provided.

Material and methods

The examination of the specimens was carried out with KEYENCE VHX-S770E super-depth-of-field microscope. Photographs were taken with a LAOWA FF 25MM F2.8 CA-Dreamer Macro 2.5–5× Macro lens mounted on a Sony ILCE-7RM4A camera, and a LAOWA FF 60MM F2.8 CA-Dreamer Macro 2× Macro lens mounted on a Nikon D610 camera. Images were processed with Helicon Focus 7.

Measurements and indices. TL — Total length. Length of entire ant, measured in dorsal view with head stretched out, from anterior margin of mandible to apex of abdomen; HL — Head length. Maximum length of head in full-face view, excluding mandibles, measured from anterior-most point of clypeal margin to posterior-most point of head vertex, parallel to midline; HW — Head width. Maximum width of head in full-face view; CI — Cephalic index. $HW \times 100 / HL$; MdL — Mandible length. Maximum length of mandible in frontal view of head, measured from mandibular insertion to apex; Mdi — Mandible index. $MdL \times 100 / HL$; SL Scape length. Maximum length of antennal scape in dorsal view, excluding basal constriction; SI — Scape index. $SL \times 100 / HW$; MsL — Mesosoma length. Maximum length of mesosoma, measured in lateral view, diagonal from cervical shield to posterolateral propodeal edge; PnW — Pronotum width. Maximum width of pronotum in dorsal view; PtH — Petiole height. Maximum height of petiole, measured in lateral view as a straight line from bottom edge of petiole, perpendicular to petiolar apex; PtL — Petiole length. Measured in lateral view along dorsal outline of petiole from small anteroapical tooth to apex; PtW — Petiole width. Maximum width of petiole in dorsal view.

All measurements are presented in millimeters. Standard measurements and indices are mostly defined by Bolton (1975). For measurements of petiole see Sorger & Zettel (2011: fig. 2). Terms for head structures and mandibular dentition follow Brown (1976).

The type material of the new species is deposited in the Insect Museum of Jilin Agricultural University (IMJAU), Changchun, China.

Taxonomy

Key to the species of *Odontomachus* from China based on the worker caste

1. Apex of subapical tooth blunt..... *O. simillimus* Smith
- . Apex of subapical tooth acute or truncate..... 2
2. Apex of subapical tooth acute..... 3
- . Apex of subapical tooth truncate..... 4

3. In full face view vertex finely longitudinally striate *O. silvestrii* Wheeler
 -. In full face view vertex finely transversely striate *O. granatus* Wang
4. Dorsum of pronotum smooth and shiny 5
 -. Dorsum of pronotum striate or rugose 6
5. Dorsum of propodeum with longitudinal rugae *O. linearis* Chen & Zhou
 -. Dorsum of propodeum with transverse rugae *O. fulgidus* Wang
6. Posterior of head with fine longitudinal striation; the striation of vertex of head as strong as the temple of head; propodeal dorsum distinctly convex; Large size (HL 3.55–4.02 mm) *O. goumang* **sp. nov.**
 -. Posterior of head smooth and shiny 7
7. The length of subapical tooth about twice the width *O. rixosus* Smith
 -. The length of subapical tooth less than twice the width 8
8. Mesopleuron with finely rugose *O. monticola* Emery
 -. Mesopleuron smooth and shiny *O. xizangensis* Wang

Notes. *Odontomachus circulus* Wang, 1993 is most likely to be *Odontomachus monticola* Emery, 1892 based on the original description. The striation on the dorsum of pronotum seems to be variable, and we could not find out any other differences between them, so this species is excluded in the key.

1. *Odontomachus goumang* **sp. nov.** (Figs 1–3)

Holotype. Worker, **China**, Guangxi, Laibin, Jinxiu Yao Autonomous County, 23.9098N, 110.2826E, 263 m, 02-X-2022, coll. Changlin QIN. **Paratypes.** 17 workers, 1 queen and 2 males, same data as the holotype.

Worker measurements. Holotype: TL 16.92, HW 3.13, HL 4.02, CI 77.86, MdL 2.32, MdI 56.47, SL 4.15, SI 132.59, MsL 5.37, PnW 1.76, PtH 1.58, PtL 0.95, PtW 0.87. Paratypes ($n = 17$): TL 15.05–15.86, HW 2.87–2.99, HL 3.55–3.74, CI 79.95–80.84, MdL 1.86–2.04, MdI 52.39–54.55, SL 3.57–4.03, SI 124.39–134.78, MsL 4.68–5.09, PnW 1.62–1.74, PtH 1.34–1.40, PtL 0.84–0.87, PtW 0.61–0.70.

Queen measurements. Paratype ($n = 1$): TL 15.51, HW 2.94, HL 3.58, CI 82.12, MdL 2.28, MdI 63.69, SL 3.63, SI 123.47, MsL 5.04, PnW 2.08, PtH 1.58, PtL 0.86, PtW 0.72.

Male measurements. Paratypes ($n = 2$): TL 9.57–9.98, HW 1.14–1.21, HL 1.45–1.50, CI 78.62–80.67, MdL 0.41–0.43, MdI 28.28–28.67, SL 0.43–0.55, SI 45.45–48.25, MsL 3.81–3.99, PnW 1.38–1.41, PtH 0.96–0.98, PtL 0.73–0.76, PtW 0.53–0.59.

Description. Worker. Very large species (TL 15.05–16.92; HW 2.87–3.13; HL 3.55–4.02); relatively large compared to male. In full-face view head longer than broad; posterior of head with fine longitudinal striation, striation on temple and lateral part of head as fine as area bordered by frontal carinae and ocular rugae; posterior margin of head in full-face view slightly concave, occipital carina distinct, well-developed; frontal carinae very short and weak. Mandible elongate and linear, masticatory margin distinctly dentate with teeth/denticles, dentition being often not uniform between left and right mandibles and variable among individuals; apical tooth apically acute, subapical tooth truncate and intercalary tooth smaller than them. Eye in middle size, situated at the anterior third of lateral margins of head. Scape long, over posterior corner of head. Palp formula 4, 4. In lateral view pronotum weakly convex; promesonotal suture obviously impressed; dorsum of mesonotum very weakly convex, down backwardly; mesopleuron and metapleuron with finely rugose; propodeal dorsum distinctly convex, propodeal declivity convex; posterodorsal corner round and

indistinct. Petiole widest at base, node triangular and narrowed dorsally, tapering apically to a short, thick cone directed slightly rearward; subpetiolar process rounded triangular, seems to be variable. In dorsal view mesosoma relatively slender compared to rest of body; pronotum broadest, edges rounded, dorsum of pronotum with fine, dense, transverse striation; promesonotal suture obvious; dorsum of propodeum with transverse striation; transverse striation of propodeum sparser and stronger than pronotum. Body concolored, black.

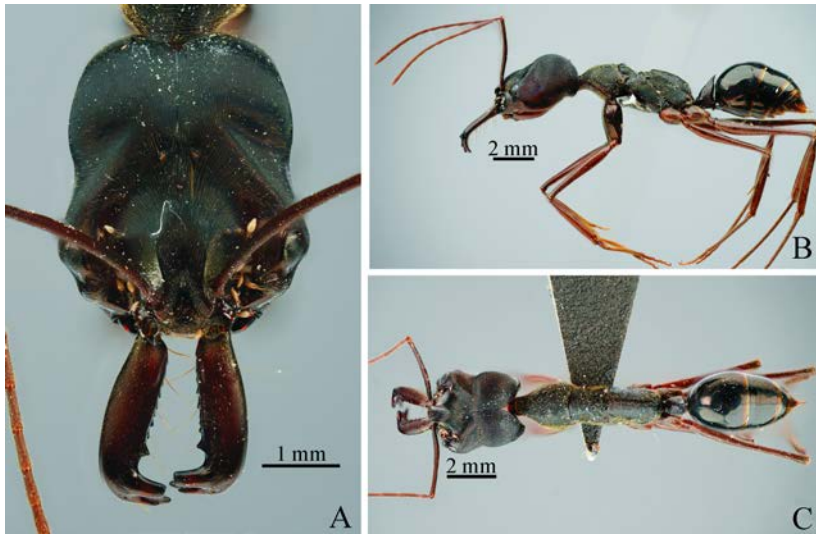


Figure 1. *Odontomachus goumang* **sp. nov.**, holotype worker from Guangxi. A. Head, full-face view; B, C. Body, lateral and dorsal views.



Figure 2. *Odontomachus goumang* **sp. nov.**, queen from Guangxi. A. Head, full-face view; B, C. Body, lateral and dorsal views.

Queen. Similar to worker in general appearance, except for characters of reproductive caste. In full-face view posterior of head with fine longitudinal striation; eye in middle size,

situated at the anterior third of lateral margins of head; apical tooth, subapical tooth and intercalary tooth shorter than worker. In lateral view mesoscutum and scutellum well-developed, scutellum raised dorsally in lateral view; metanotum flat. Petiolar peduncle, node, and subpetiolar process similar to those of workers. In dorsal view pronotum transverse striate; scutellum longitudinal or transverse striae; dorsum of propodeum with transverse rugae; the striae of pronotum weaker than the propodeum's. Body concolored, black.

Male. Body smaller than worker and queen (TL 9.57–9.98). In full-face view, head subglobose and wide about equal to long when eyes and ocelli included, with roundly convex posterior margin; posterior margin of head with large, well-developed ocelli; eye prominent, its length in full-face view distinctly shorter than head length excluding ocelli; occipital carina distinct; mandibles reduced, variable, and triangular; their masticatory faces not opposite, facing obliquely forward; anterior margin of clypeus convex, nearly straight in middle. Mesosoma well developed; pronotum in lateral view relatively thin, nearly as thick as mesoscutum, scutellum strongly convex dorsally; basal face of propodeum distinctly convex, propodeal declivity convex; posterodorsal corner round and indistinct. Petiole high, with petiolar tergite higher than long; subpetiolar process well developed, apex sharper than worker and queen. In dorsal view scutellum very wide, with weak striation on it. Body concolored, yellowish brown.



Figure 3. *Odontomachus goumang* sp. nov., male from Guangxi. A. Head, full-face view; B, C. Body, lateral and dorsal views.

Etymology. The species is named after Goumang, the god of vegetation who takes charge of the growth of plants in Chinese mythology.

Remarks. The workers of *Odontomachus goumang* most closely resembles *O. monticola*, but compared to *O. monticola*, *O. goumang* is clearly larger: The HL of *O. monticola* is 2.56–3.23, versus *O. goumang* 3.55–4.02. The posterior of head in *O. monticola* is smooth and shiny (Zhou 2001), whereas in *O. goumang* it has fine longitudinal striation. The propodeal dorsum of *O. monticola* flat or very weakly convex, propodeal declivity flat, posterodorsal

corner blunt and distinct, while the propodeal dorsum of *O. goumang* distinctly convex, propodeal declivity convex and posterodorsal corner round and indistinct. Figs 4, 6, 7 show the lectotype worker of *O. monticola*, and the comparison of propodeum and subapical teeth between *O. monticola* and *O. goumang*.

The subapical tooth of *O. goumang* elongate, and the length is about twice the width, similar to *O. rixosus*, but *O. rixosus* is clearly smaller than *O. goumang*: the HL of *O. rixosus* is 2.56–3.03, versus *O. goumang* 3.55–4.02. The posterior of head in *O. rixosus* is smooth, whereas in *O. goumang* it has fine striation. The CI of *O. goumang* is 79.95–80.84, versus *O. rixosus* 64–73 (Satria *et al.* 2015). The propodeal dorsum of *O. rixosus* is similar to *O. monticola*, while the propodeal dorsum of *O. goumang* distinctly convex, propodeal declivity convex and posterodorsal corner round and indistinct. The body of them are all concolored, but *O. rixosus* is reddish brown, while *O. goumang* is black. Fig. 5 shows the syntype worker of *O. rixosus*.

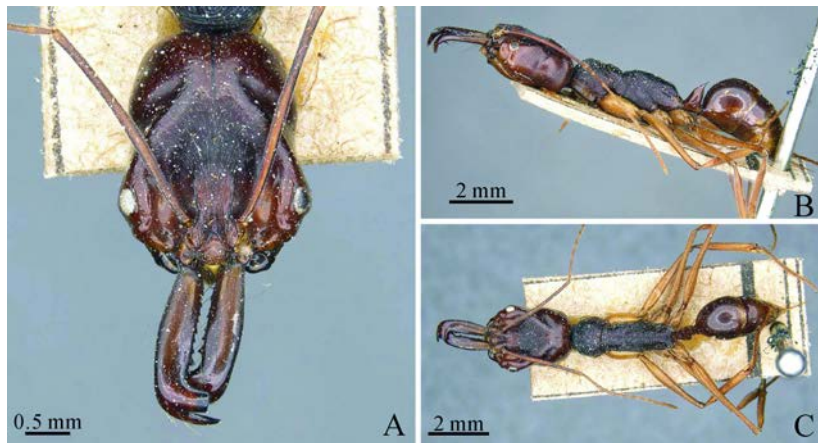


Figure 4. *Odontomachus monticola* Emery, 1892, lectotype worker (From <https://www.antweb.org>, CASENT0905746, imaged by Will Ericson). A. Head, full-face view; B, C. Body, lateral and dorsal views.

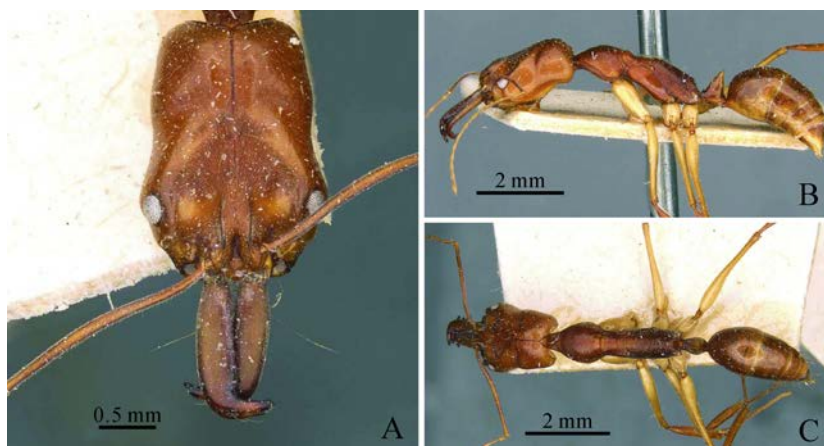


Figure 5. *Odontomachus rixosus* Smith, 1857, syntype worker (From <https://www.antweb.org>, CASENT0907432, imaged by Z. Lieberman). A. Head, full-face view; B, C. Body, lateral and dorsal views.

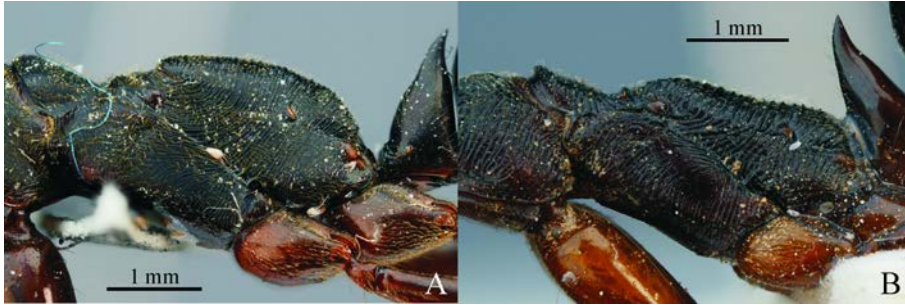


Figure 6. Comparison of *O. goumang* and *O. monticola*, propodeum, dorsal view. A. *O. goumang*, worker; B. *O. monticola*, worker.

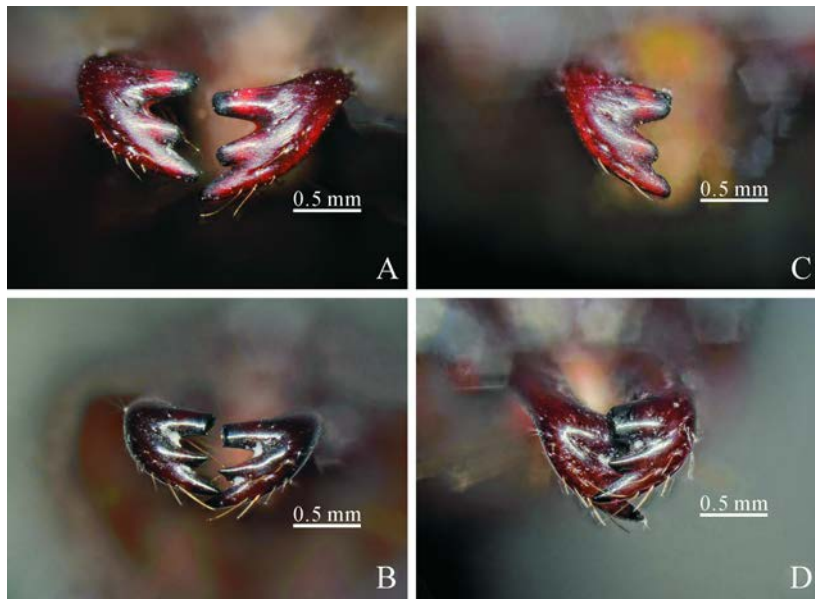


Figure 7. Comparison of *O. goumang* and *O. monticola*, subapical teeth. A. *O. goumang*, worker. B. *O. monticola*, worker. C. *O. goumang*, queen. D. *O. monticola*, queen.

2. *Odontomachus simillimus* F. Smith, 1858 (Fig. 8), new record to China

Odontomachus simillimus Smith, 1858: 80, pl. 5, figs 8, 9 (q.) FIJI IS, SRI LANKA. Oceania.

Odontomachus simillimus Smith, 1858: Junior synonym of *Odontomachus haematodus*: Roger, 1861a: 24.

Odontomachus simillimus Smith, 1858: Status as species: Smith, 1859a: 144.

Specimens examined. 16 workers, **China**, Hainan, Haikou, Hainan Normal University, 19.5959N, 110.2022E, 6 m, 30-XI-2024, coll. Qingxiao XIE.

Worker measurements. Non-types ($n = 16$): TL 9.13–10.49, HW 1.61–1.89, HL 2.15–2.53, CI 74.70–74.88, MdL 1.11–1.24, MdI 49.01–51.63, SL 1.89–2.13, SI 112.70–117.39, MsL 2.72–2.90, PnW 1.03–1.05, PtH 0.86–0.98, PtL 0.54–0.57, PtW 0.44–0.47.



Figure 8. *Odontomachus simillimus* Smith, 1858, worker from Hainan. A. Head, full-face view; B, C. Body, lateral and dorsal views.

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