A SYSTEMATIC STUDY OF THE ANT GENUS

PROCERATIUM ROGER FROM CHINA *

(HYMENOPTERA: FORMICIDAE)

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Abstract Four species of the ant genus Proceratium Roger from China are recorded in this paper: P. itoi (Forel) from Zhejiang, Taiwan and Hunan Provinces, P. zhaosi Xu, sp. nov. from Yunnan Province, P. japonicum Santschi from Taiwan Province and P. longigaster Karavaiev from Yunnan Province. P. longigaster Karavaiev is a new record species to China, a description based on the Chinese specimen is provided for the species. A key to the 4 known Chinese species based on worker caste is presented.

Key words Hymenoptera, Formicidae, Proceratium, Systematics.

The ant genus Proceratium Roger is World wide in distribution. Brown (1958) and Lattke (1994) had revisionary studies on the genus respectively. Thirty species were recorded in the world (Bolton, 1995), among them 9 species were known in Southeast Asia. Terayama (1985) described the first Chinese species of the genus, P. formicosola, from Taiwan Province. Later, Onoyama (1991) considered P. formicosola Terayama as a junior synonym of P. japonicum Santschi. Terayama (1990) reported the distribution of P. itoi (Forel) in Taiwan Province. Wu et al. (1995) and Tang et al. (1995) reported the distribution of P. itoi (Forel) in mainland of China separately. In this study, a new species and a new record species from China are reported. Up to date, 4 species of the genus are known in China.

Standard measurements and indices are as defined in Bolton (1975): TL = Total length, HL = Head length, HW = Head width, CI = Cephalic index, SL = Scape length, SI = Scape index, PW = Pronotal width, AL = Alitrunk length, ED = Maximum diameter of eye, ML = Mandibular length, PL = Petiole length, DPW = Dorsal petiole width, PH = Petiole height. All measurements are expressed in mm.

The type specimens are deposited in The Insect Collection, Southwest Forestry College, Kunming, Yunnan Province, China.

Proceratium Roger


Type species: Proceratium silaceum, by monotypy.

Key to species of Proceratium of China based on worker caste

1. Anterior margin of clypeus with a triangular projection in the middle. Petiolar node low and inclined backward .......................... 2
   Anterior margin of clypeus almost straight, without a triangular projection in the middle. Petiolar node high and erect ........... 3
2. In full-face view occipital margin weakly convex. Frontal carina with laterally expended frontal lobe which partially covered the antennal socket. Mandible with 3 teeth. Subpetiolar process being a small prominent (Figs. 1-2) (China: Zhejiang, Taiwan and Hunan Provinces; Japan) .................................................................................................................. P. itoi (Forel)

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In full-face view occipital margin straight. Frontal carina suberect, without laterally expanded frontal lobe, antennal socket completely exposed. Mandible with 4 teeth. Subpetiolar process large and roughly rectangular, with a posteriorly pointed tooth (Figs. 3-10) (China: Yunnan Province) .................................................. P. zhaoi Xu, sp. nov.

3. Posterodorsal corner of propodeum bluntly angled, without tooth (Figs. 11-12) (China: Taiwan Province; Japan) ............................................................... P. japonicum Santschi

Posterodorsal corner of propodeum with a pair of small acute or blunt teeth (Figs. 13-17) (China: Yunnan Province; Vietnam) .................................................. P. longigaster Karavaev

Proceratium zhaoi Xu, sp. nov. (Figs. 3-10)

Holotype worker. TL 2.4, HL 0.62, HW 0.52, CI 84, SL 0.34, SI 65, PW 0.38, AL 0.70, ED 0.03, ML 0.30, PL 0.22, DPW 0.23, PH 0.28. Head roughly rectangular, slightly longer than broad and slightly narrowed forward. Occipital margin straight, occipital corners rounded. Lateral side weakly convex. Frontal carinae suberect, without laterally expanded frontal lobes. Antennal sockets completely exposed. Anterior margin of clypeus with a triangular projection in the middle. Mandible with 4 teeth. Antenna stout, apex of scape reaching to 1/2 of the distance from antennal socket to occipital corner, segments 3-11 broader than long. Eye minute, with only 1 facet. In profile view dorsum of alitrunk complete and weakly convex, lowered down backward, without sutures. Posterodorsal corner of propodeum bluntly angled, without tooth, declivity depressed. Metapleural lobe rounded at apex. In profile view petiolar node thick, narrowed upward and inclined backward, anterior and dorsal faces weakly convex, anterodorsal corner higher than posterodorsal corner. Subpetiolar process large and roughly rectangular, with a posteriorly pointed tooth. In dorsal view petiolar node transverse and broader than long, narrowed forward. Mandibles finely and longitudinally striate. Head, alitrunk, petiole and gaster finely and densely punctured, relatively dim. Head, body and appendages with dense decumbent pubescence, but without hairs. Body color in yellowish brown.

Paratype workers. TL 2.0-2.5, HL 0.60-0.64, HW 0.52-0.56, CI 86-90, SL 0.32-0.34, SI 61-65, PW 0.34-0.38, AL 0.66-0.74, ED 0.02-0.03, ML 0.28-0.34, PL 0.20-0.24, DPW 0.22-0.26, PH 0.26-0.30 (n = 6). As holotype, but subpetiolar process rectangular to triangular.

Paratype alate females. TL 3.0-3.3, HL 0.70-0.72, HW 0.60-0.64, CI 86-89, SL 0.36-0.38, SI 58-61, PW 0.48-0.50, AL 0.94-1.00, ED 0.12-0.14, ML 0.30-0.38, PL 0.24-0.32, DPW 0.26-0.30, PH 0.34-0.40 (n = 5). As holotype worker but body much larger. Occipital margin slightly emarginate. Eyes large, with ocelli. Alitrunk massive and winged, dorsum weakly convex. Propodeum with a pair of blunt teeth. Subpetiolar process triangular. Body in color yellowish brown, eyes and ocellar area black.

Holotype worker, No. A97-2338, 1280 m, Papo Village, Meng’a Town, Menghai County, Yunnan Province, collected in a soil sample in deciduous broad-leaf forest, 10. X. 1997. (XU Zheng-Hui). Paratypes 1 worker, with same data as holotype; 5 workers and 24 alate females, with same data as holotype but No. A97-2380, collected from a nest which containing 45 individuals in a soil sample.

The new species is close to P. itoi (Forel) (Figs. 1-2), but occipital margin straight, frontal carinae suberect and without laterally expanded frontal lobes, mandible with 4 teeth, subpetiolar process large and roughly rectangular, body smaller.

This new species is named after Mr. ZHAO Qing-Shan (South Institute of Forest Plant Quarantine, Department of Forestry of China, Yi Yang, Jiangxi Province) for his contribution in translation "The Fauna of British India Including Ceylon and Burma. Hymenoptera. Volume
II. Ants and Cuckoo-wasps” from English into Chinese for the Chinese readers.

**Proceratium longigaster Karavaiev**  (Figs. 13-17)

*Proceratium longigaster* Karavaiev, 1935; 59 (worker), Vietnam.

New record to China.

Karavaiev (1935) described this species in Germany with illustrations (Figs. 13-14). An English description based on the Chinese specimen is provided below. Worker (Figs. 15-17). TL 2.4, HL 0.64, HW 0.60, CI 94, SL 0.42, SI 70, PW 0.44, AL 0.76, ED 0.02, ML 0.34, PL 0.16, DPW 0.32, PH 0.42 (n = 1). Head roughly square, slightly longer than broad and slightly narrowed forward. Occipital margin nearly straight, occipital corners rounded. Lateral sides weakly convex. Anterior 2/3 of head with a fine longitudinal central dorsal carina. Frontal lobes narrow. Anterior margin of clypeus nearly straight in the middle, without a central projection. Mandible with 7 minute blunt teeth. Apex of scape reaching to 3/4 of the distance from antennal socket to occipital corner. Eye with 1 facet. In profile view dorsum of alitrunk complete and weakly convex, without sutures, lowed down backward. Propodeum with a pair of small blunt teeth, declivity depressed vertically. Metapleural lobe small and blunt at apex. In profile view petiolar node high and erect, narrowed upward, anterior face straight, posterior face weakly depressed, dorsal face narrow and convex. Subpetiolar process triangular, like a sawtooth, posteroventral angle acute. In dorsal view petiolar node rectangular and transverse. Mandibles sparsely punctured, interface shining. Head, alitrunk, petiole and gaster finely and closely punc-

![Figs. 1-17 Proceratium workers and females](image_url)

tured and mat. Head, body and appendages with sparse suberect hairs and dense decumbent pubescence. Body in color brown, legs and apical segment of antenna yellowish brown.

The Chinese specimen is well conformable to the description of *P. longigaster* made by Karavaev in 1935, the only differences are: occipital margin straight, mandibular teeth more distinct, propodeal teeth larger and blunt at apices.

Material examined. 1 worker, No. A97-2182, 1 525 m, Nangongshan, Mengla County, Yunnan Province, collected from a ground sample of monsoon evergreen broad-leaf forest, 18. VII. 1997. (HE Yun-Feng).

Distribution. China (Yunnan Province); Vietnam.

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REFERENCES


