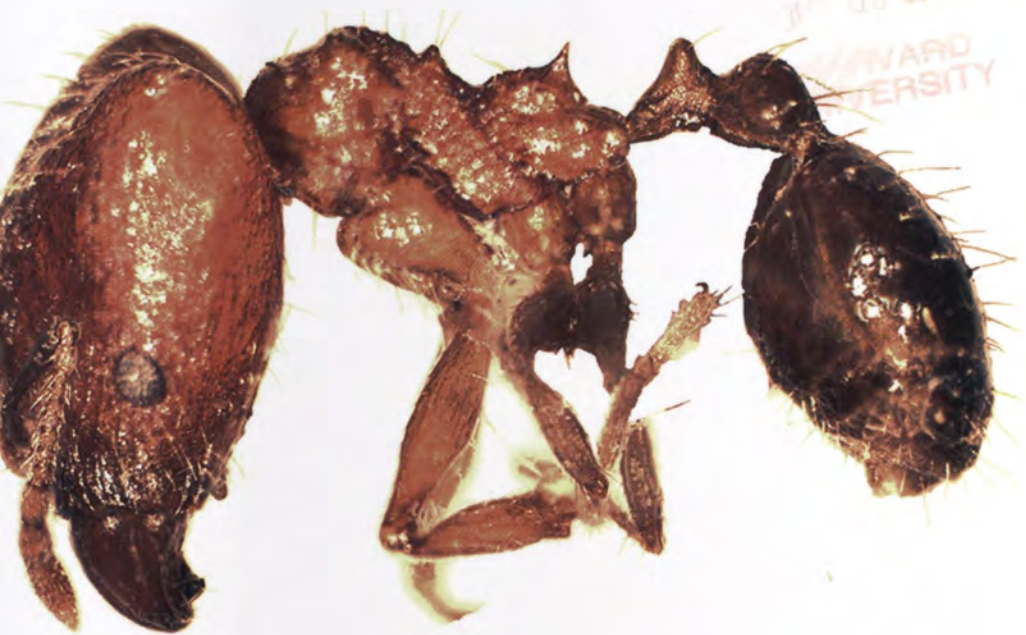


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New Species of the Ant Genus *Pheidole* (Hymenoptera: Formicidae) from Hainan Province, China

by

Zhilin Chen^{1,2}, Duoduo Ye^{1,2}, Chunwen Lu^{1,2} & Shanyi Zhou^{1,2*}

ABSTRACT

A new species of the Genus *Pheidole* Westwood 1839 is described, *P. hainanensis* sp. nov. The new species is easily distinguished from other congeners from China by the pronotum of both the major and the minor with a pair of blunt spines. It is closely related to *P. acantha* Eguchi, but differs from the later by pronotal spines triangular, much shorter, petiolar node in profile bluntly rounded at apex, not acute, hypostoma median processes absent, submedian processes distinct, a pair of lateral processes well developed, and postpetiole at least 2.4 times as broad as petiolar node. In addition, it differs from other species with pronotal spines in the Oriental Region by its shorter pronotal spines, and by the smooth and shining first gastral tergite.

Key words: Hymenoptera; Formicidae; *Pheidole*; new species; Hainan; China

INTRODUCTION

The ant genus *Pheidole* was established by Westwood in 1839 based on the type species *Atta providens* Sykes (= *P. providens* (Sykes)). 973 valid species have been described in the world (Bolton, 2011). 50 species have been reported in China (Xu *et al.* 1998; Zhou & Zheng 1999; Zhou 2001; Eguchi 1999, 2000, 2001a, 2001b, 2003, 2004a, 2006, 2008; Eguchi & Bui 2005; Eguchi, Yamane & Zhou 2007; Huang & Zhou 2007; Terayama 2009). In 1865, Smith F. described *Pheidolacanthinus* as a genus. He also described a species, *P. armatus*, which was considered as a junior synonym of *P. quadrispinosa* by Donisthorpe in 1938. In 1900 Forel considered *Pheidolacanthinus* as a

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subgenus of *Pheidole*. Now it is considered to be a junior synonym of *Pheidole* (Brown 1973; Smith 1979; Snelling 1981; Bolton 2003). 25 species with the character of pronotal spines have been recorded in the world, and among them 5 species distributed over the Oriental Region. When we studied the *Pheidole* specimens deposited in the Insect Collection of Guangxi Normal University, a new species was discovered. The new species is described and will be added to Chinese ant fauna.

MATERIALS AND METHODS

This study was based on the specimens collected from Jiangfengling Nature Reserve, and Wuzhi Mt. Nature Reserve of Hainan Province, south of China.

Measurements and indices used in this paper are as follows:

TL—Total length: The total outstretched length of the ant from the mandibular apex to the gastral apex; when measured in profile the sum of ML+HL+AL+length of waist segments+length of gaster.

HL—Head length: The length of the head capsule excluding the mandibles, measured in full face view in a straight line from the mid-point of the anterior clypeal margin to the mid-point of the occipital margin. In species where one or both of these margins is concave the measurement is taken from the mid-point of a transverse line that spans the apices of the projecting portions.

HW—Head width: The maximum width of the head in full face view, excluding the eyes.

CI—Cephalic index = $HW \times 100 / HL$.

SL—Scape length: The maximum straight-line length of the scape, excluding the basal constriction or neck that occurs just distal of the condylar bulb.

SI—Scape index = $SL \times 100 / HW$.

PW—Pronotal width: The maximum width of the pronotum in dorsal view.

AL—Alitrunk length: The diagonal length of the alitrunk in profile from the point at which the pronotum meets the cervical shield to the posterior basal angle of the metapleuron.

All measurements are expressed in millimeters.

DESCRIPTION OF THE NEW SPECIES

Pheidole hainanensis sp. nov. (Figs. 1–8)

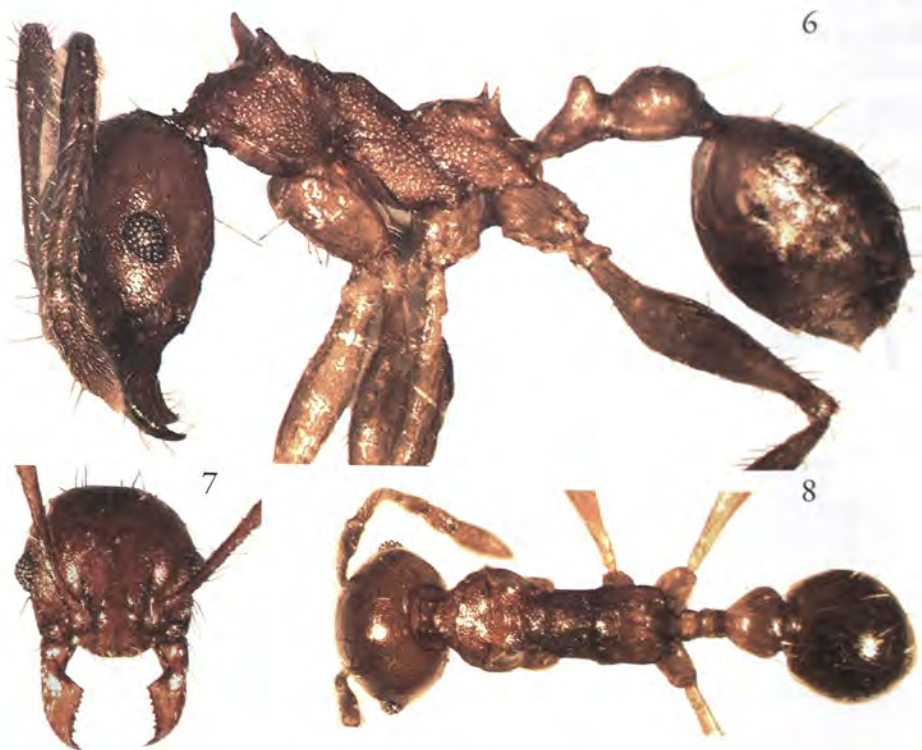
Holotype major: TL 4.7, HL 1.58, HW 1.45, CI 91, SL 0.83, SI 57, PW 0.66, AL 1.27. Head longer than broad, occipital border deeply concave medially, in profile not impressed on vertex. Masticatory margin of mandible with apical and preapical teeth. Clypeus with an inconspicuous median longitudinal carina, anterior margin concave medially. Eye situated at about 1/3 distance of the head. Frontal carina extending backward to about 2/3 distance of the head. Antennal scrobe inconspicuous, only around antennal insertion. Antenna with a 3-segmented club, antennal scape reaching about 2/3 distance of the head. Hypostoma median processes absent, submedian processes conspicuous but low, lateral processes well developed. Pronotal dome with a pair of triangular spines, which are short, broad at base. In profile view, mesonotum with a conspicuous transverse ridge on its posterior slope. Propodeal spine elongate-triangular, 1.7 times as long as diameter of



Figs. 1–5. *Pheidole hainanensis* sp. nov. (major). 1. head in full-face view; 2. body in profile view 3. promesonotal dome in anterior view; 4. body in dorsal view; 5. hypostoma.

the propodeal spiracle, straight, backward and upward, broad at base. Petiolar node in profile view with anterior face inclined, posterior face vertical, bluntly rounded at apex; subpetiolar process completely absent. Postpetiolar node 2.4 times as broad as the petiolar node.

Mandible smooth and shining. Dorsum of head longitudinally rugose, with smooth interspaces; dorsolateral surface of occipital lobe very weakly reticulate. Dorsum of pronotal dome sparsely transversely rugose. Mesonotum and propodeum irregularly rugose and reticulate. Sides of pronotum transversely rugose. Mesopluron irregularly rugose. Sides of propodeum longitudinally rugose. Sides of petiole weakly reticulate. Dorsum of petiole and postpetiole, and gaster smooth and shining. Head and whole body with moderate dense standing hairs. Pubescence sparse. Outer surface of the mandible sparsely



Figs. 6-8. *Pheidole hainanensis* sp. nov. (minor). 6, body in profile view; 7, head in full-face view; 8, body in dorsal view.

covered with appressed to decumbent hairs. Body reddish-brown, gaster darker, flagella and legs lighter.

Minor: TL 3.3, HL 0.67, HW 0.65, CI 93, SL 0.78, SI 122, PW 0.42, AL 0.99. Head in full-face view oval, with distinct occipital carina. Clypeus with a weakly median longitudinal carina, with anterior margin in full-face view slightly convex or straight medially. Eye situated just in front of mid-length of the head; Frontal carina and antennal scrobe present only around the antennal insertion. Antennae with 3-segmented club; in full-face view scape extending beyond the posterior border of the head by more than 1/3 its length; Pronotal dome with a pair of dorsolateral spines. Mesonotum with a low but distinct transverse ridge on its posterior slope. Propodeal spine 1.6 times as long as diameter of the propodeal spiracle, straight, backward and upward. Petiolar node is the same shape of the major. Postpetiole hemiglobed, higher than the petiole, nearly 3 times as broad as the petiole in dorsal view. Mandible smooth and shining in front, sparsely longitudinally rugose laterally. Clypeus and dorsum of head smooth and shining, area between the antennal scrobe and the eye longitudinally rugose, smooth and shining interspaces. Area around eye with rugos-reticulate. Alitrunk coarsely reticulate; sides of petiole finely reticulate. Dorsum of petiole, postpetiole, and gaster smooth and shining. Body sparsely bearing standing hairs. Body brown to reddish-brown. Antennae, legs, postpetiole and gaster a little lighter.

Paratype 1 major: TL 4.6, HL 1.46, HW 1.46, CI 100, SL 0.80, SI 53, PW 0.66, AL 1.23, ED 0.17. 2 minor: TL 3.2–3.3, HL 0.6–0.67, HW 0.61–0.66, CI 92–93, SL 0.75–0.80, SI 121–123, PW 0.42, AL 0.99.

Holotype major and minor. China: Jianfengling, Ledong county, Hainan Province, 16 June, 2006 (*Jianhua Huang*). Paratypes 1 major and 2 minors, wuzhi Mt. Nature Reserve, Hainan Province, 10 August, 2006 (*Fang Qian*).

Queens and males are unknown.

Ecology. Unknown.

Etymology. The species is named after its type-locality, Hainan.

This new species is closely related to *P. acantha* Eguchi, but differs from the later by its triangular and much shorter pronotal spines, the petiolar node in profile being bluntly rounded at the apex, not acute, the hypostoma median processes being absent, distinct submedian processes, a pair of well developed lateral processes, and postpetiole 2.4 times as broad as the petiolar

node. In addition, it differs from other species with pronotal spines in the Oriental Region as its pronotal spines are shorter, and the first gastral tergite is smooth and shining.

ACKNOWLEDGMENTS

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