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A NEW SPECIES OF THE ANT GENUS *LEPISIOTA* SANTSCHI, 1926 (HYMENOPTERA: FORMICIDAE) FROM THAILAND

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Summary. *Lepisiota* Santschi, 1926 is one of the large ant genera, currently comprising 94 species and 44 subspecies. It belongs to the subfamily Formicinae and is distributed in the Old World. A new species, *L. chutimae* sp. n., is described here from Nakhon Ratchasima Province based on the worker and queen castes. The type series of the new species was collected from a shrub tree at about 3 m above the ground in a primary dry evergreen forest at altitude 250 m.

Key words: ants, Formicinae, taxonomy, new species, Southeast Asia.

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Резюме. Род *Lepisiota* Santschi, 1926 – один из крупных родов муравьев; он насчитывает 94 вида и 44 подвида и относится к широко распространенному

подсемейству Formicinae. Из провинции Накхонратчасима в Таиланде по рабочим и самке описан *Caryanda zheminzhengi* sp. n. Типовая серия нового вида собрана с кустарника на уровне 3 м от почвы в вечнозеленом лесу, расположенном на высоте 250 м над уровнем моря.

INTRODUCTION

The genus *Lepisiota* Santschi, 1926 (Formicidae: Formicinae) is one of the large ant genera. Members of the genus usually nest in rotten wood, in the ground, or in standing trees. They can be considered as generalized foragers, and are especially abundant in less forested habitats, such as grasslands, savannahs or woodlands (Brown, 2000; Wachkoo *et al.*, 2021). Currently, 94 species and 44 subspecies are known in the genus. The genus is distributed in the Old World tropical and subtropical regions, with a diversity peak in the Afrotropical (59 species), followed by Palaearctic (34), and Oriental and Indo-Australian (17) regions (Bolton, 2022; Antweb, 2022; Antwiki, 2022). At present, four valid species have been recorded in Southeast Asia, namely *Lepisiota aurea* (Karavaiev, 1933), *L. chapmani* (Wheeler 1935), *L. emmelii* (Kutter 1932), and *L. rothneyi* (Forel 1894). Among them, *L. rothneyi* was reported from Thailand (Khachonpisitsak *et al.*, 2020). A recent examination of *Lepisiota* specimens collected from Thailand revealed the presence of a new species. In the present paper, we describe this new species based on the worker and queen castes. The bionomic information of the type series of the new species is given.

MATERIAL AND METHODS

The holotype and paratypes of *Lepisiota chutimae* sp. n. are pin-mounted dry specimens. The syntypes images of *L. emmelii* (Kutter, 1932) and *L. chapmani* (Wheeler, 1935) available on Antweb (2022) were examined. Most morphological observations were made with a ZEISS Discovery.V12 stereoscope. Multi-focused montage images were produced using NISElements-D from a series of source images taken by a Nikon Digital Sight-R1 camera attached to a Nikon AZ100M stereoscope. The type specimens of the new species were measured for the following parts using a micrometer (accurate to 0.01 mm).

The abbreviations used for the measurements and indices are as follows: **HL** Head length. Length of head proper, excluding mandibles, measured in straight line from anterior clypeal margin to mid-point of a line drawn across posterior margin of head; **HW** Head width. Maximum width of head capsule measured in full-face view, excluding compound eyes; **EL** Eye length. Maximum diameter of eye; **SL** Scape length. Maximum straight length of antennal scape excluding basal constriction and condylar bulb; **ML** Mesosomal length (Weber's length). Diagonal length of mesosoma in profile, from the point at which pronotum meets cervical shield to posterior margin of metapleuron; **FeL** Femur length. Maximum length of metafemur, measured from base to apex; **PL** Petiole length measured from anterior margin to posteriormost point of tergite in profile; **PH** Petiole height. The height of petiole measured in profile

from apex of ventral (subpetiolar process) process vertically to a line intersecting dorsalmost point of node; **CI** Cephalic index. $HW \times 100 / HL$; **SI** Scape index. $SL \times 100 / HW$; **EI** Ocular index, $EL \times 100 / HW$; **FeI** Femur index, $FeL / HW \times 100$.

The holotype and paratypes of new species are deposited at the Natural History Museum, Thailand (THNHM).

TAXONOMY

Lepisiota chutimae Jaitrong, Waengsothorn et Buddhakala, sp. n.

<http://zoobank.org/NomenclaturalActs/7D688A72-114F-485D-AB72-DEDA7483679B>

Figs 1–3

TYPE MATERIAL. Holotype – worker (THNHM-I-24840, THNHM), **NE Thailand:** Nakhon Ratchasima Province, Wang Nam Khiao District, Sakaerat Environmental Research Station, DEF (dry evergreen forest) 22.III 2021, W. Jaitrong leg., TH21-WJT-002. Paratypes: 50 workers (THNHM-I-24841 to THNHM-I-24889, THNHM) and a queen (THNHM-I-24890, THNHM), same data as holotype.

NON-TYPE MATERIAL EXAMINED. Two workers (THNHM-I-24891, THNHM), **NE Thailand:** Nakhon Ratchasima Province, Wang Nam Khiao District, Huai Nam Khem, plantation, 22.VI 2018, W. Jaitrong leg.; 2 worker (THNHM-I-24892, THNHM), **E Thailand:** Chachoengsao Province, Tha Takiap District, 28.XII 2002, W. Jaitrong leg.; 6 workers (THNHM-I-24893, THNHM), same locality and collector, 22.VIII 2003, WJT03-TH-252.

DESCRIPTION. Worker (Fig. 1).

Measurements and indices. Holotype: HL 0.56, HW 0.46, EL 0.17, SL 0.66, ML 0.76, FeL 0.63, PL 0.30, PH 0.33, CI 82, SI 143, EI 36, FeI 71.

Paratypes (n = 10): HL 0.53–0.56, HW 0.46, EL 0.13–0.17, SL 0.63–0.66, ML 0.76, PL 0.30, PH 0.33–0.35, FeL 0.63–0.66, CI 82–88, SI 136–143, EI 29–36, FeI 71–75.

Head: In full-face view, slightly longer than broad, lateral and posterior margins convex. Mandible subtriangular; masticatory margin with five teeth, including largest apical tooth followed by 2 small teeth, medium-sized prebasal tooth, and small basal tooth; basal margin without denticles. Clypeus broad and convex medially, subrectangular, shorter than broad, its anterior margin roundly convex. Eye relatively large, convex, with 17–18 ommatidia along the longest axis, located at mid-length of head laterally; lateral margin of eye reaching lateral margin of head. Ocelli present; lateral ocelli relatively larger than median ocellus; distance between lateral ocelli equal to distance between median ocellus to lateral ocellus. Antennal scape slender, clavate, 1/3 of its length, extending beyond posterior margin of head; antennal segment II longer than broad and longer than each of segments III and IV; segments V–X each thin and longer than broad; apical segment (XI) forming a club. Frontal lobe narrow and frontal carina short barely attaining level of anterior margin of eye.



Fig 1. *Lepisiota chutimae* sp. n., holotype worker (THNHM-I-24840). A – body in profile view; B – head in full-face view; C – body in dorsal view.

Mesosoma: Stout, in profile pronotum with almost straight dorsal outline, while mesonotum sloping gradually to metanotal groove; mesothorax reduced and slender, mesonotal spiracles raised slightly higher than mesonotal dorsal outline; promesonotal suture and metanotal groove distinct; mesopleuron clearly demarcated from metapleuron by deep groove; metapleuron not demarcated from lateral face of propodeum; in dorsal view pronotum clearly broader than mesonotum but slightly broader than propodeum; propodeum about 2/3 length of mesonotum in dorsal view. Propodeum in dorsal view with almost straight dorsal outline, sloping gradually to tip of propodeal spine; propodeal spine large pointed up- and backward; declivity of propodeum more or less flat.

Petiole in profile subtriangular and sessile, elevated anteriorly, longer than high, its anterior face vertical, dorsal and posterior faces long and weakly concave; dorsum of petiole with a pair of sharp spines; in dorsal view petiolar node subrectangular, slightly broader than long (DPI 100–105), narrower posteriorly; subpetiolar process almost absent. Gaster elongate, in dorsal view, first gastral segment slightly narrower than II. Acidopore present.

Entire body (head, mandible, antennal scape, mesosoma, legs, petiole, and gaster) smooth and shiny, except mesopleuron wrinkled. Pilosity comparatively sparse; dorsa of head, mesosoma, and metasoma with sparse standing hairs mixed with sparse shorter hairs; tip of metasoma with dense standing hairs; tibiae with dense decumbent hairs. Head, mesosoma, and petiole yellowish brown; gaster dark brown.

Queen (Fig. 2)

Measurements and indices. Paratype: HL 0.73, HW 0.83, EL 0.30, SL 0.76, ML 1.49, PL 0.36, PH 0.33, FeL 0.89, CI 114, SI 92, EI 36, FeI 108.

Head: In full-face view, slightly shorter than broad, lateral margins convex and posterior margin (between lateral ocelli) roundly concave. Mandible and clypeus with the same condition as in worker. Eye relatively large, convex, with over 25 ommatidia along the longest axis, located at mid-length of head laterally; outer margin of eye breaking lateral margin of head. Ocelli present, large; distance between lateral ocelli longer than that between lateral ocellus to median ocellus. Antennal scapes slender, clavate, 1/3 of its length extending beyond posterior margin of head; antennal segment II longer than broad and as long as segments III and IV combined; segments V–X each thin and longer than broad; apical segment (XI) forming a club. Mandible, clypeus, frontal lobe, and frontal carina the same condition as in worker.

Mesosoma enlarged and high; pronotum in profile distinctly lower than mesoscutum, in dorsal view narrow and subrectangular; promesonotal suture distinct; anterior half of mesoscutum in profile convex but straight in posterior half; mesonotum in dorsal view large, almost 3 times as long as mesoscutellum; mesoscutellum clearly shorter than broad and demarcated from mesoscutum by deep groove; mesopleuron broad, anepisternum clearly demarcated from katepisternum by oblique mesopleural suture; metanotum very narrow. Propodeum low with convex dorsal outline; declivity of propodeum more or less flat.

Petiole in profile sessile, longer than high, elevated anteriorly and covered with gastral tergite I. Gaster enlarged and elongate, in dorsal view, gastral segment I broader and longer than segments II–V.

Entire body (head, mandible, antennal scape, mesosoma, legs, petiole, and gaster) smooth. Body covered with dense short pubescence with sparse setae; setae on gastral segments I–IV located along posterior edges. Antennae and legs without setae. Head, mesosoma and petiole reddish brown; gaster dark brown.

DIAGNOSIS. *Lepisiota chutimae* sp. n. is most similar to *L. emmelii* (Kutter, 1932) from Indonesia (Java) and *L. chapmani* (Wheeler, 1935) from the Philippines (Negros Oriental) in having a slightly smooth, shiny, and yellowish body. However,



Fig 2. *Lepisiota chutimae* sp. n., paratype queen (THNHM-I-24890). A – body in profile view; B – head in full-face view; C – body in dorsal view.

L. chutimae sp. n. can be separated from *L. chapmani* by gaster dark brown (yellowish brown in *L. chapmani*); mesopleuron weakly sculptured (sharply longitudinally rugulose in *L. chapmani*); posterior peduncle of petiole smooth and shiny (finely punctate in *L. chapmani*); head and pronotum clearly smooth and shiny (very finely and superficially reticulate or shagreened with smooth and shining interspaces in *L. chapmani*). *Lepisiota chutimae* sp. n. can be distinguished from *L. emmelii* by tip of petiolar spine directed sideward (upward in *L. emmelii*, see figure on page 209 in Kutter, 1932 for comparison); gaster dark brown (yellowish brown in *L. emmelii*); anterior face of petiolar node feebly concave (weakly convex in *L. emmelii*); found in lowland (highland in *L. emmelii*).

HABITAT. The new species is arboreal welling on shrub trees in lowlands of dry evergreen forests. The type series nested under a leaf of *Memecylon ovatum* Sm. at about 3 meters above the forest floor (arrow on Fig. 3A). The nest was covered with a dead leaf and no silk was seen. A spider was found in the nest of the type series.



Fig 3. Nesting site and nest structure of *Lepisiota chutimae* sp. n. A – nesting habitat on *Memecylon ovatum* Sm., a shrub tree (arrow points to nesting site); B – nest under a leaf and covered with a dead leaf; C – nest structure.

DISTRIBUTION. Thailand (Nakhon Ratchasima and Chachoengsao Provinces).

ETYMOLOGY. The specific name is dedicated to Professor Dr. Chutima Eamchotchawalit, the governor of Thailand Institute of the Scientific and Technological Research (TISTR), who is in charge of the Sakaerat Environmental Research Station, the type locality of the species and strongly supported conducting biodiversity research including our research project.

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