

**A new species of the *Echinopla mezgeri* group
(Insecta: Hymenoptera: Formicidae)
from Peninsular Malaysia**

A. Laciny*, H. Zettel*, M. Maryati** & A. Noor-Izwan**

Abstract

We report on the discovery of a new ant species belonging to the *Echinopla mezgeri* species group from Peninsular Malaysia. *Echinopla tunkuabdujalilii* sp.n. differs from *Echinopla mezgeri* ZETTEL & LACINY, 2015 from Borneo by a reduced puncturation on head, mesosoma, petiole, and gaster, and by a comparatively low petiole. Collection circumstances are described.

Key words: ants, Camponotini, *Echinopla*, new species, Malaysia, arboreal ants.

Zusammenfassung

Wir berichten über die Entdeckung einer neuen Ameisenart aus der *Echinopla mezgeri*-Artengruppe aus Westmalaysien. *Echinopla tunkuabdujalilii* sp.n. unterscheidet sich von *Echinopla mezgeri* ZETTEL & LACINY, 2015 aus Borneo durch reduzierte Punktierung auf Kopf, Mesosoma, Petiolus und Gaster sowie durch einen vergleichsweise niedrigen Petiolus. Die Sammelumstände werden beschrieben.

Introduction

With 33 described species (BOLTON 2018), *Echinopla* SMITH, 1857 is among the small genera of camponotine ants. XU & ZHOU (2015) published a key to species and a system of species groups based on morphological characters. Their group system was later expanded by ZETTEL & LACINY (2017) to include additional new species described by ZETTEL & LACINY (2015).

The *Echinopla mezgeri* group was established and diagnosed by ZETTEL & LACINY (2017) to include a single species, *E. mezgeri* ZETTEL & LACINY, 2015 from Borneo. The new species from Peninsular Malaysia is closely related to *E. mezgeri*, but differs in a good number of morphological characters, chiefly regarding sculpture and morphometry. Both species differ from all other congeners by the following set of characters (adopted from ZETTEL & LACINY 2017): Head longer than wide; eyes positioned at its mid-length. Antennal fossae largely covered by frontal carinae. Mesosoma elongated, with weakly impressed mesometanotal suture; pronotum with tooth-like protrusions.

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Petiole node subtriangular in lateral view, without spines or teeth. Gaster tergite 1 with ventrally curved posterior margin, covering the following gastral segments dorsally. Body surface dull black, with extremely fine sculpture, almost without standing setae.

Material and methods

The holotype of the new species is dry mounted on a cardboard triangle. Examination of specimens was carried out with binocular microscopes; measurements were taken at magnifications of up to 256 \times . Stacked digital images were taken with a Leica DFC camera attached to a Leica MZ16 binocular microscope with the help of Leica Application Suite V3, stacked with ZereneStacker 64-bit, and processed with Adobe Photoshop 7.0.

Measurements (in millimetres) and indices:

- TL Total length. Length of entire specimen measured in dorsal view, from anterior margin of mandible to apex of abdomen.
- HW₁ Head width. Maximum width of head in full-face view including eyes.
- HW₂ Head width without eyes. Maximum width of head in full-face view excluding eyes, measured behind eyes.
- HL Head length. Maximum length of head in full-face view, excluding mandibles, measured from anterior-most point of clypeus to posterior-most point of head vertex, parallel to midline.
- EL Eye length. Maximum diameter of compound eye, measured in lateral view.
- SL Scape length. Maximum length of antennal scape in dorsal view excluding basal neck and condyle.
- SW Scape width. Maximum width of antennal scape, measured dorsally, usually within distal third of scape.
- PML Pronotal length. Length of promesonotum, measured dorsally along midline from anterior-most point (excluding collar) to mesometanotal suture.
- PMW Pronotal width. Maximum width of promesonotum measured dorsally, including humeral tubercles.
- PpL Propodeal length. Length of propodeum, measured dorsally along midline from mesometanotal suture to posterior-most point.
- PpW Propodeal width. Maximum width of propodeum, measured dorsally.
- PH Petiole height. Maximum height of petiole in lateral view, measured from ventral-most point of petiolar sternum to dorsal apex.
- PL Petiole length. Maximum length of petiole in lateral view, measured from inflexion point of anterior constriction to posterior margin, perpendicular to axis of maximum height.
- PW Petiole width. Maximum width of petiole in dorsal view.
- GL Gastral length. Maximum length of first gastral tergite, measured dorsally along midline from anterior-most point of first gastral segment to its posterior-most margin.

- GW Gastral width. Maximum width of first gastral tergite measured dorsally, perpendicular to axis of maximum length.
- CI Cephalic index. $HW_1 / HL \times 100$.
- SI Scape index. $SL / HW_1 \times 100$.
- MI Mesosoma index. $(PML + PpL) / PMW \times 100$.
- PHI Petiole height index. $PH / HW_1 \times 100$.

***Echinopla tunkuabduljalilii* sp.n. (Figs. 1–5)**

Type material: Holotype (worker) from Malaysia, Johor, Segamat District, Sg. Batang R.F., N 2°20'49", E 103°09'25", 130 m a.s.l., leg. A. Izwan-Noor, deposited in BORNEENSIS, Institute for Tropical Biology and Conservation (ITBC), Universiti Malaysia Sabah. Paratypes: 2 workers from Thailand (South), Phangnga Prov., Muang Phangnga District, Song Prak Subdistrict, near Ton Periwat Waterfall, N 8°36'40", E 98°33'02", 360–380 m a.s.l., evergreen forest, from lower vegetation, 25.V.2005 and 9.XI.2005, leg. N. Noon-anant (NN250505-1 and NN091105-1), deposited in the Faculty of Science, Prince of Songkla University, Thailand; 1 worker from Thailand (South), Nakhon Si Thammarat Prov., Noppitum District, Mount San Yen, 300–450 m a.s.l., evergreen forest, from lower vegetation, 18.VII.2005, leg. N. Noon-anant (NN180705-1), deposited in the Faculty of Science, Prince of Songkla University, Thailand.

Type locality and collecting circumstances: The type locality, the Sungai Batang Recreational Forest (N 2°20'49", E 103°09'25", 130 m a.s.l.), is located in the Segamat District of Johor, NNE of Kampung Bekok. The holotype was discovered by manual collecting on shrubs near the Bantang River in a lowland secondary dipterocarp forest on May 14, 2017.

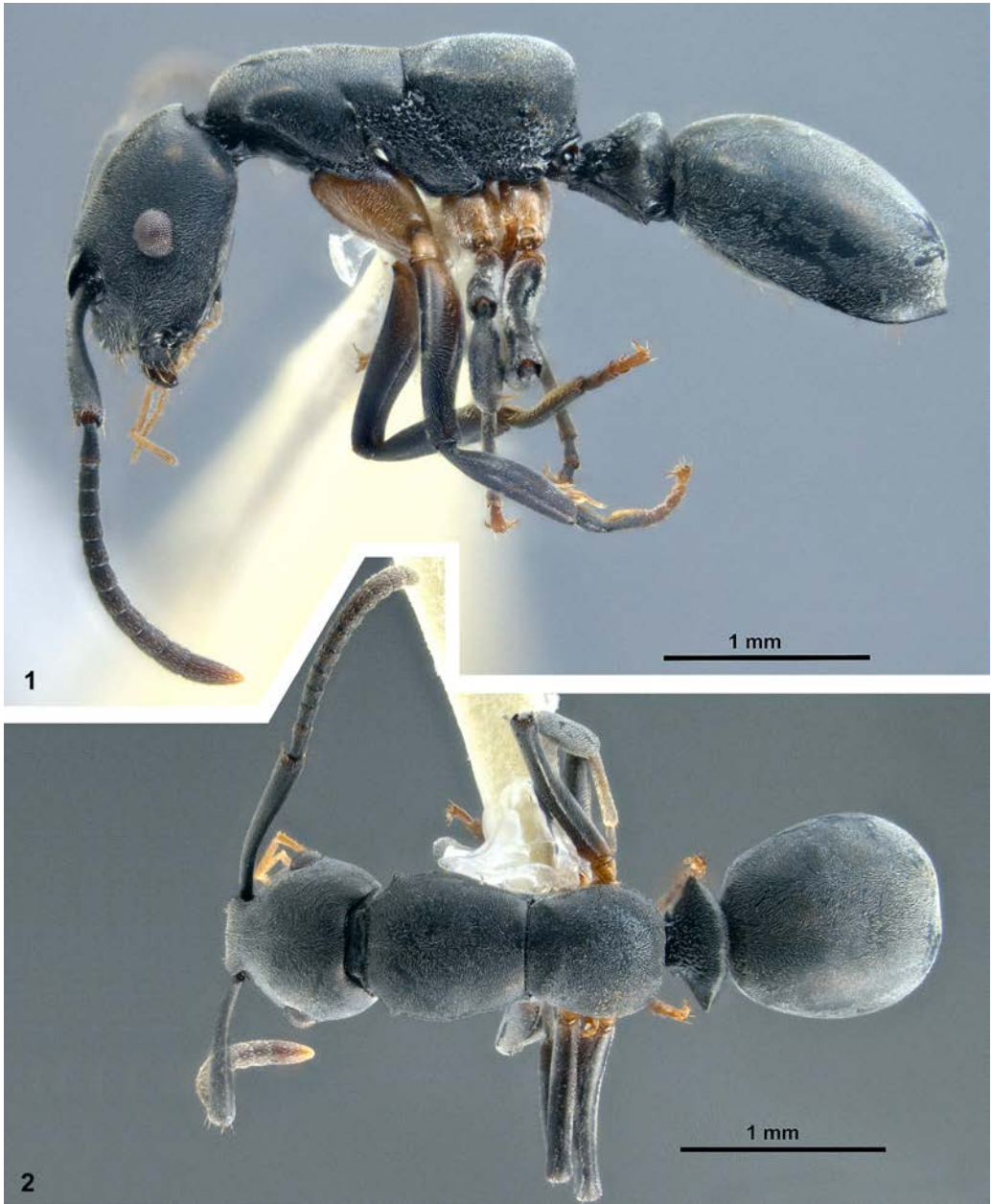
Diagnosis (worker): Predominantly black species with partly yellowish legs; slender and rather small, TL = 5.5 – 5.9 mm. Trunk with extremely fine sculpture, only dorsal part of mesopleura, metapleura, sides of propodeum, and anterior face of petiolar node with coarse punctures. Head much longer than wide (CI = 82 – 85). Palp formula 5, 3. Mesosoma little more than twice as long as pronotal width (MI 209), with sharp, but shallow incision in front of propodeum. Pronotum with tooth-like lateral protrusions, its maximum width at mid-length, narrower than head, if eyes excluded. Propodeum roughly the same length as promesonotum. Petiolar node relatively low, without teeth, with blunt lateral corners. Gaster tergite 1 much longer than wide, without puncturation. Body almost without standing setae (some on clypeus, apices of scapes, and abdominal sterna), but with dense, very short, appressed pubescence.

Description:

Measurements of holotype worker: TL 5.48; HW_1 1.15; HW_2 1.02; HL 1.35; EL 0.27; SL 1.20; SW 0.15; PML 1.02; PMW 0.96; PpL 0.98; PpW 0.87; PH 0.54; PL 0.53; PW 0.88; GL 1.73; GW 1.29. Indices: CI 85; SI 104; MI 209; PHI 47.

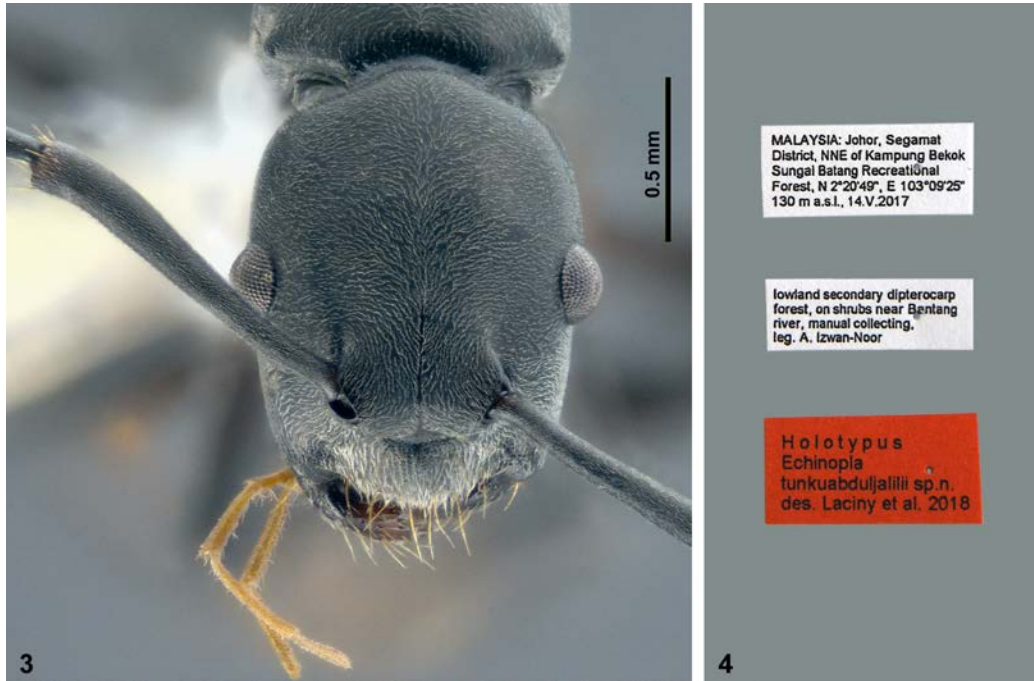
Measurements of paratypes: TL 5.61 – 5.87; HW_1 1.15 – 1.22; HW_2 1.02 – 1.04; HL 1.39 – 1.43; EL 0.27 – 0.30; SL 1.13 – 1.22; SW 0.16; PML 1.04 – 1.09; PMW 0.96 – 0.99; PpL 0.93 – 0.98; PpW 0.86 – 0.91; PH 0.53 – 0.56; PL 0.51 – 0.55; PW 0.83 – 0.90; GL 1.67 – 1.80; GW 1.35 – 1.41. Indices: CI 82 – 85; SI 98 – 100; MI 209; PHI 44 – 49.

Structures: Head much longer than wide, anteriorly with subparallel sides, posteriorly roundish, with inconspicuous lobe at middle of posterior margin; surface without



Figs. 1–2: *Echinopla tunkuabdujalilii* sp.n., holotype: (1) Habitus, lateral view. (2) Habitus, dorsal view. © A. Laciny.

punctures, dorsally and laterally dull, ventrally smooth and shiny. Compound eye small, weakly protruding, positioned at mid-length of head. Frons with fine median carina; frontal lobes horizontal, partly covering antennal fossae in dorsal aspect, maximum distance near posterior end equalling half of HW_2 . Clypeus with median tumescence,



Figs. 3–4: *Echinopla tunkuabdujalilii* sp.n., holotype: (3) Head, full face view. (4) Labels. © A. Laciny.

surface densely reticulated. Mandibles with coarse punctures; masticatory margin with five teeth. Palp formula 5, 3. Antennal scape long, weakly s-curved, steadily widened from base to apex; antennomeres 8–10 slightly longer than wide.

Mesosoma very elongated, subcylindrical, length roughly twice pronotum width; dorsal outline shaped as two weakly convex curves separated by a narrowly impressed mesometanotal suture, forming an hourglass-shape in dorsal view. Propodeum abruptly declivitous and marginally shorter than promesonotum. Dorsal surface chiefly without punctures, only on propodeum with very few dispersed inconspicuous punctures. Mesopleura dorsally, metapleura and sides of propodeum entirely with dense coarse puncturation. Pronotum with pair of tooth-like protrusions, narrower than head excluding eyes. Promesonotal suture indistinct; mesometanotal suture narrow and shallow, but sharply defined; metanotum recognizable as a narrow ovate depression. “Waist” in front of propodeum weakly developed. Legs long; femora slender.

Petiole relatively wide and low, with a distinct peduncle; spindle-shaped in dorsal view; anterior surface of node with dense coarse puncturation, posterior surface with some indistinct punctures; lateral corners obtuse, no further dentition. Gaster tergite 1 much longer than wide, completely covering the following tergites in dorsal aspect, without puncturation; hind margin convex, slightly depressed, without serration.

Pilosity: Body with dense, very short, appressed pubescence giving the holotype a dull appearance; the paratypes are more shiny, which is either caused by thinner pubescence



Fig. 5: Type locality of *E. tunkuabduljalilii* sp.n. at Bantang river. © Najmuddin M.F.

or by a different way of preservation; long standing setae restricted to clypeus, apex of scape, and abdominal sterna.

Colour: Trunk dull black, without metallic shimmer (a slight lead-blue tinge visible under strong lighting); apex of abdomen testaceous in holotype. Antennal scape black, funicular segments fading to light brown towards apex. Mandible black, masticatory margin brown; palpi yellow. Legs black, but coxae, trochanters, and bases of all femora light yellowish brown; tarsi pale brown towards apex.

Comparative notes: *Echinopla tunkuabduljalilii* sp.n. belongs to the *E. mezgeri* species group. Hitherto, *Echinopla mezgeri* from Borneo was the only described species in this group, but at least two further species are known: *Echinopla jeenthongi* from Thailand (TANANSATHAPORN & al., in press) and one undescribed species from Java (Seiki Yamane, pers. comm. to HZ). *Echinopla mezgeri* differs considerably from *E. tunkuabduljalilii* sp.n. in surface structures, chiefly by more expanded puncturation on head, mesosoma, petiole, and gaster tergite 1. Specifically the head (dorsally and laterally), the mesonotum, the dorsal surface of the propodeum, and tergite 1 bear a distinct puncturation, which is absent (on propodeum strongly reduced) in *E. tunkuabduljalilii* sp.n. The mesopleura are entirely covered by a coarse puncturation in *E. mezgeri*, while their ventral part is finely punctured in *E. tunkuabduljalilii* sp.n. On the petiole, a coarse puncturation is developed anteriorly and posteriorly in *E. mezgeri*, but only anteriorly in *E. tunkuabduljalilii* sp.n. The petiole is distinctly lower in *E. tunkuabduljalilii* sp.n. than in *E. mezgeri* (PHI 51 vs. 47). The propodeum and first gastral tergite of *E. tunkuabduljalilii* sp.n. are

comparatively elongated, making the mesosoma (MI 206 vs. 209) and gaster appear more slender compared to *E. mezgeri*.

Etymology: Named after the late Almarhum Tunku Abdul Jalil, the fourth son of the current Johor ruler, Sultan Ibrahim Ibni Almarhum Sultan Iskandar; for his strong support towards wildlife conservation in the State of Johor.

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