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MYRMICA EMERYI, A NEW ANT SPECIES FROM
SOUTH-EAST ASIA

(HYMENOPTERA, FORMICIDAE)

In 2007, one of us (AR) found four workers, labelled as *Myrmica rita* Emery, in the collection of Carlo Emery (Museo Civico di Storia Naturale "Giacomo Doria" in Genoa, Italy, MSNG). Although these specimens were most probably identified by Emery himself, they in fact, are not *M. rita* but belong to a new species from the *rita* species-group. We describe them below as *M. emeryi*.

Original photos of the holotype of *M. emeryi* were made using a Leica MZ16 microscope with attached camera IC3D and the computer program Leica Application Suite. Measurements of specimens (accurate to 0.01 mm) were taken and these were used to calculate various indices.

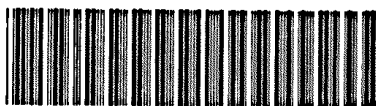
Morphometrics:

HL maximum length of head in dorsal view, measured in a straight line from the most anterior point of clypeus (including any carina or ruga, when they protrude beyond the anterior margin) to the mid-point of occipital margin.

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| HW | maximum width of head in dorsal view behind (above) the eyes. |
| FW | minimum width of frons between the frontal carinae. |
| FLW | maximum distance between the outer borders of the frontal lobes. |
| SL | maximum straight-line length of scape from its apex to the articulation with condylar bulb. |
| AL | diagonal length of the alitrunk (seen in profile) from anterior end of the neck shield to the posterior margin of propodeal lobes (workers) and from the most anterodorsal point of alitrunk to posterior margin of propodeal lobes (queens and males). |
| HTL | maximum length of hind tibia, measured from the junction with femur to the junction with the first tarsal joint. |
| PNW | maximum width of pronotum in dorsal view (workers). |
| PL | maximum length of petiole in dorsal view, measured from the posterodorsal margin of petiole to the articulation with propodeum; the petiole should be positioned so that measured points lay on the same plane. |
| PW | maximum width of petiole in dorsal view. |
| PH | maximum height of petiole in profile, measured from the uppermost point of the petiolar node perpendicularly to the imaginary line between the anteroventral (just behind the subpetiolar process) and posteroventral points of petiole. |
| PPL | maximum length of postpetiole in dorsal view between its visible anterior and posterior margins. |
| PPW | maximum width of postpetiole in dorsal view. |
| PPH | maximum height of postpetiole in profile from the uppermost to lowermost point, measured perpendicularly to the tergo-sternal suture. |
| ESL | maximum length of propodeal spine in profile, measured along the spine from its tip to the deepest point of the propodeal constriction at the base of the spine. |
| ESD | distance between the tips of propodeal spine in dorsal view. |
| SCW | maximum width of scutum in dorsal view (queens and males). |
| SCL | length of scutum+scutellum in dorsal view (queens and males). |
| AH | height of alitrunk, measured from upper level of mesonotum perpendicularly to the level of lower margin of mesopleuron (queens and males). |

Indices:

$CI = HL/HW$; $FI = FW/HW$; $FLI = FLW/FW$; $SI_1 = SL/HL$; $SI_2 = SL/HW$; $PI_1 = PL/PH$; $PI_2 = PL/HW$; $PI_3 = PW/HW$; $PPI_1 = PPL/PPH$; $PPI_2 = PPH/PPW$; $PPI_3 = PPW/PW$; $PPI_4 = PPW/HW$; $ESLI = ESL/HW$; $ESDI = ESD/ESL$; $AI = AL/AH$; $SCI = SCL/SCW$.

Myrmica emeryi n. sp.

Material examined. Holotype worker, "Pulo Laut" (middle specimen on the pin with 3 workers) (MSNG); paratypes: 2 workers, on the pin with holotype; 1 worker, "Pulo Laut" (MSNG).

Workers (Figs 1-5).

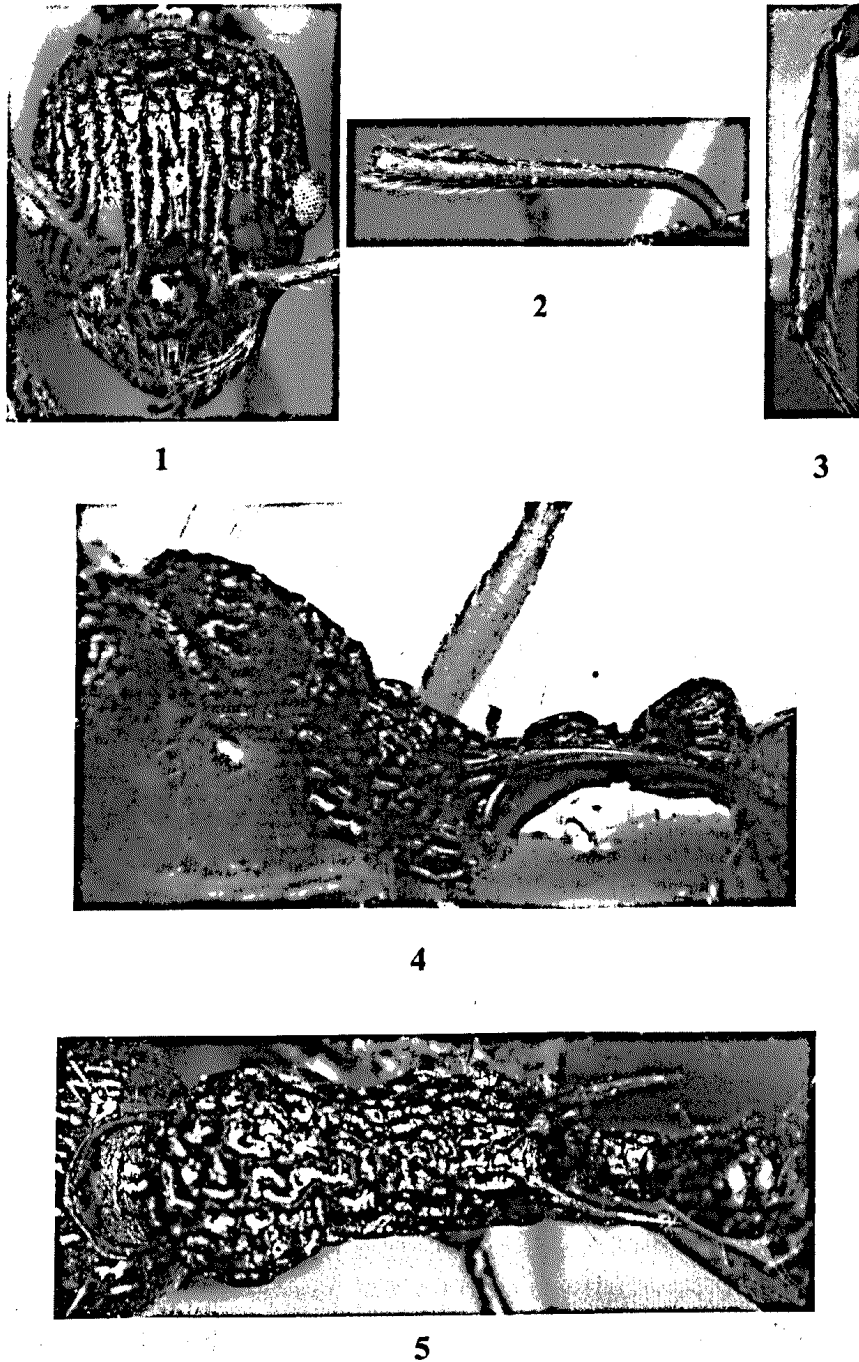
Head distinctly longer than wide, with convex sides and occipital margin, and broadly rounded occipital corners. Upper latero-ventral corners of head pointed. Anterior clypeal margin feebly convex and notched medially. Mandibles with 8-9 teeth. Frontal carinae feebly curved, frons wide, frontal lobes somewhat raised vertically. Antennal sockets not surrounded by rugulae. Scape long, distinctly longer than head-length, gradually curved at the base, without any trace of lobe or carina.

Alitrunk long and low, with somewhat flattened mesonotal dorsum, promesonotal suture dorsally indistinct. Metanotal groove distinct, rather deep. Propodeal lobes projecting apically to form sharp teeth. Propodeal spines very long, slightly widened at the base, sharp, straight, inclined at less than 45° in profile and divergent (seen from above). Petiole long, more than twice longer than high, its anterior surface concave, dorsum of node almost flat; postpetiole fig-shaped in dorsal view, slightly higher than long. Spurs on middle and hind tibiae well developed and pectinate.

Frons between frontal carinae level with the eyes with only four coarse longitudinal rugae. Lateral parts of head dorsum with coarse, slightly sinuous longitudinal rugae, occiput and temples with coarse reticulation. Clypeus finely longitudinally rugose, mandibles longitudinally rugulose. Surface of head dorsum between rugae smooth and shiny.

Alitrunk dorsum with coarse reticulation, sides with coarse longitudinal, partly sinuous rugae, surface between rugae smooth and shiny. Petiolar node with longitudinal rugae, postpetiole with longitudinally-concentric rugosity, surface of waist appears shiny, but very finely, superficially micropunctate. Gaster smooth and shiny.

Occipital margin of head with numerous erect to suberect hairs, lateral margins with a few similar hairs, alitrunk dorsum and waist with more abundant and longer hairs. Scape and tibiae with subdecumbent pilosity. Alitrunk and gaster dark reddish-brown, head dorsum and gaster somewhat lighter, appendages yellowish-red.



Figs 1-5 - Photos of the holotype worker of *Myrmica emeryi* n. sp.
1 - head, frontal view; 2 - scape; 3 - hind tibia; 4 - alitrunk and waist, lateral view; 5 - alitrunk and waist, dorsal view; scale bar = 1 mm.

Measurements (mm) and indices of workers ($n = 4$) in order minimum – maximum, ranges with means and SD in parentheses, data of the holotype in square brackets:

HL 1.34-1.38 (1.355 ± 0.019) [1.34], HW 1.20-1.24 (1.223 ± 0.017) [1.22], FW 0.42-0.43 (0.428 ± 0.005) [0.43], FLW 0.46-0.48 (0.473 ± 0.010) [0.47], SL 1.58-1.62 (1.595 ± 0.019) [1.58], AL 2.16-2.28 (2.195 ± 0.057) [2.16], HTL 1.32-1.36 (1.338 ± 0.021) [1.32], PNW 0.89-0.94 (0.918 ± 0.026) [0.90], PL 0.72-0.74 (0.733 ± 0.010) [0.72], PW 0.31 (of all specimens), PH 0.35-0.36 (0.355 ± 0.006) [0.36], PPL 0.52-0.55 (0.533 ± 0.013) [0.53], PPW 0.48-0.50 (0.490 ± 0.012) [0.48], PPH 0.55-0.56 (0.553 ± 0.005) [0.55], ESL 0.74-0.83 (0.788 ± 0.037) [0.79], ESD 0.64-0.77 (0.713 ± 0.059) [0.75];

CI 1.10-1.12 (1.110 ± 0.008) [1.10], FI 0.34-0.36 (0.350 ± 0.008) [0.35], FLI 1.08-1.14 (1.113 ± 0.028) [1.10], SI₁ 1.16-1.19 (1.178 ± 0.013) [1.18], SI₂ 1.29-1.32 (1.308 ± 0.015) [1.30], PI₁ 2.00-2.09 (2.045 ± 0.039) [2.00], PI₂ 0.59-0.62 (0.600 ± 0.014) [0.59], PI₃ 0.25-0.26 (0.253 ± 0.005) [0.25], PPI₁ 0.94-0.98 (0.960 ± 0.016) [0.96], PPI₂ 1.11-1.14 (1.130 ± 0.014) [1.14], PPI₃ 1.57-1.61 (1.590 ± 0.023) [1.57], PPI₄ 0.39-0.41 (0.400 ± 0.008) [0.39], ESLI 0.60-0.66 (0.645 ± 0.031) [0.65], ESDI 0.86-0.95 (0.903 ± 0.044) [0.95].

Queens, males and ecology are unknown.

Etymology. The species is dedicated to Prof. Carlo Emery, the famous Italian myrmecologist.

Comparative diagnosis. *M. emeryi* clearly belongs to the *ritae*-complex of the *ritae* species-group (see RADCHENKO & ELMES 1998, 2001 a, 2001 b; RADCHENKO *et al.* 2001, 2006) and given the paucity of material until relatively recently, its misidentification as *M. ritae* is not so surprising. *M. emeryi* most resembles *M. margaritae* Emery, *M. formosae* Wheeler, and *M. sinensis* Radchenko, Zhou & Elmes, which are characterised by a very coarse rugosity of the head (frons between frontal carinae level with the eyes with only four coarse longitudinal rugae). The abundant long standing hairs on the alitrunk dorsum and occipital margin of the head well differentiates it from *M. margaritae*, which has only a few standing hairs on these areas. On the other hand, it differs from *M. formosae* and *M. sinensis* by the much less abundant standing hairs on the lateral margins of the head (less than five versus more than 20). Additionally, *M. formosae*, unlike *M. emeryi*, has no reticulation

on the head dorsum and alitrunk dorsum. The absence of reticulation on the petiolar and postpetiolar dorsum of *M. emeryi* clearly distinguishes it from *M. sinensis*, which has coarse reticulation on these surfaces.

Notes. Two pins with the holotype and paratype specimens have labels "Pulo Laut" (see Figs 6, 7), but no other collection information. We searched different geographic atlases and the Internet, and found several localities with the same or similar spelling. All of them are islands situated near Malaysia or Borneo ("pula" means "island" in Malaysian). If any of these localities is correct, then *M. emeryi* is the most geographically isolated and has the most southern distribution of all known *Myrmica* species.



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Figs 6-7 - Photos of original labels of the type specimens of *Myrmica emeryi* (6 - holotype, 7 - paratype).

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ABSTRACT

Myrmica emeryi, a new ant species belonging to the *ritae* species-group, is described based on four workers, from Pulo Laut (between Malaysia and Borneo) preserved in the Museo Civico di Storia Naturale "Giacomo Doria", Genoa, Italy. Its taxonomic position is discussed.

RIASSUNTO

Myrmica emeryi, una nuova specie di formica del Sud-est asiatico (Hymenoptera, Formicidae).

La nuova specie, appartenente al gruppo *ritae* Emery, viene descritta sulla base di quattro operaie provenienti da Pulo Laut (tra Malaysia e Borneo), conservate in collezione Emery presso il Museo Civico di Storia Naturale "Giacomo Doria" di Genova. Ne viene discussa la posizione tassonomica.