

**CRATOJOPPA MACULATA CAMERON
(HYMENOPTERA, ICHNEUMONIDAE,
ICHNEUMONINAE) NEW RECORD TO MALAYSIA**

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ABSTRACT

Cratojoppa maculata is reported as new record to the fauna of Ichneumoninae from Malaysia. Five specimens was collected from malaise trap during field work sampling in Pasoh Forest Reserved in Negeri Sembilan between May 2002 until March 2003. The species was first time described by Cameron in 1907 based on specimen from Sikkim, India. The discovery of this species contributed to the fauna of the genus *Cratojoppa* in Malaysia apart from two species namely *Cratojoppa ornaticeps* and *Cratojoppa maculiceps*. In oriental region it has previously been found in China, India and Myanmar only. Key to three species of genus *Cratojoppa* found in Malaysia is provided.

Keywords: *Cratojoppa maculata*, Cameron, Malaysia, new records

ABSTRAK

Cratojoppa maculata dilaporkan sebagai rekod baru kepada fauna Ichneumoninae dari Malaysia. Lima spesimen diperolehi daripada

perangkap malaise ketika persampelan dijalankan di Hutan Simpan Pasoh di Negeri Sembilan di antara bulan Mei 2002 hingga Mac 2003. Spesies ini pertama kali diperihalkan oleh Cameron pada tahun 1907 berdasarkan spesimen dari Sikkim, India. Penemuan spesies ini menyumbang kepada pertambahan fauna daripada genus *Cratojoppa* di Malaysia selain daripada dua spesies lagi iaitu *Cratojoppa ornaticeps* dan *Cratojoppa maculiceps*. Di rantau Oriental, sebelum ini ia pernah di rekodkan di China, India dan Myanmar sahaja. Kekunci bagi tiga spesies genus *Cratojoppa* dari Malaysia disediakan.

Kata kunci: *Cratojoppa maculata*, Cameron, Malaysia, rekod baru

INTRODUCTION

Pasoh Forest Reserve (2.98 N 102.31 E) is a 1840 ha area gazetted by Forestry Department of Negeri Sembilan as a forest research and it is one of the most well-studied remnants of lowland tropical forest in Southeast Asia and has been the focal point for international field studies since the 1970's. Pasoh Forest Reserve is a remote forest area surrounded by palm oil plantations and other land use areas with commonly found small trees from family Euphorbiaceae and Annonaceae apart from some Dipterocarpaceae, Leguminosae and Burseraceae. The most abundant plant species is *Xerospermum noronhianum* (Sapindaceae) which dominated almost 2.5% of total trees in the area (www.frim.gov.my).

During a study of the subfamily Ichneumoninae in the Centre for Insect Systematic (CIS), UKM Bangi, Malaysia we discovered five specimens of the genus *Cratojoppa* collected from Pasoh Forest Reserve, Negeri Sembilan, central region of peninsular Malaysia. Most proved to be *Cratojoppa maculata* Cameron 1907 based on colour pattern on its face, small and narrow areola and smaller median longitudinal carination. This record is the first for Malaysia, represent an extension to the known range of the species and its nearest known occurrence before is in several parts of China, India and Myanmar (Yu et. al., 2012).

In this paper, we provide the taxonomy, morphology and distribution map of *Cratojoppa maculata* found in Malaysia. Given

the scarcity of these data we can, however, expect a significant number of additional species discoveries in the future.

MATERIAL AND METHODS

A total of 344 specimens from the collection of Centre for Insect Systematics at Universiti Kebangsaan Malaysia (CIS-UKM) and Raffles Museum of Biodiversity Research at National University of Singapore were examined. The specimen was identified by reference to material in The Natural History Museum, London and key to genus by Baltazar (1964). Taxonomic history was referred to Gupta (1987). Descriptive terminology generally follows Townes (1969) and Tereshkin (2009). Using Carl Zeiss AxioCam MR (Version 5.05.10) Image Analyzer, photographs of the habitus (lateral view), head (anterior view), mesonotum (dorsal view), mesopleurum, post-petiole (dorsal view), tergite II, propodeum (dorsal view), wings and antenna were taken. Measurements of specimens are in millimetres (mm). Specimens examined are deposited in the collections of Centre for Insect Systematics at Universiti Kebangsaan Malaysia (CIS-UKM).

RESULT AND DISCUSSION

Cratojoppa Cameron is one of the genus of the ichneumonine tribe Heresiarchini with six species that distributed in China, Bhutan, India, Myanmar, Malaysia and Indonesia (Yu et. al., 2012). This genera are relatively big size species of Ichneumoninae with strong coarsely big punctured propodeum, wide and thick apical transverse carina and matte mesonotum which strongly punctured. *Cratojoppa maculata* could be identified by no line on its face, small and narrow areola and its narrower median longitudinal and apical transverse carination. The Malaysian specimen photographs are showed in Figure 1.

Cratojoppa maculata previously recorded in several parts of China, India and Myanmar whilst *C. nigritarsis* and its subspecies *C. nigritarsis bonthaina* only found in Indonesia, *C. ornaticeps* in Malaysia, *C. maculiceps* in Malaysia and Indonesia and *C. robusta* in Bhutan, India and Myanmar. This lack and limited discovery of species obviously underestimates their actual diversity in the oriental



Figure 1. *Cratojoppa maculata*. a. habitus (lateral); b. head (anterior); c. mesonotum (dorsal); d. mesopleurum; e. post-petiole & tergite I; f. propodeum (dorsal); g. wings; h. antenna. Scales: 1mm.

region, reflecting how little taxonomic work has been done regarding this genera in this region. Distribution record of *Cratojoppa maculata* showed in Figure 2.



Figure 2. Distribution map of *Cratojoppa maculata* based on Yu *et. al.*, 2012 and the present paper.

Key to Malaysian *Cratojoppa* species

- 1. Propodeum with strong, deep, irregularly punctures, third lateral area small; First lateral area smooth; Mesonotum with 2 spots or line in the middle.....2

Propodeum with strong, deep, irregularly punctures, third lateral area small; First lateral area strongly deeply punctured; Areola elongate, wide and smooth; Mesonotum with 2 longish lines in the middle; Post-petiole with fine, closely striated in the middle and large scattered punctures at sides; Face with a broad line of equal width down in the middle.....*Cratojoppa ornaticeps*

2. First lateral area smooth with some strong punctures at sides; Post-petiole smooth; Areola elongate, narrow with two elongated closely punctured spots in the middle; two black lines wider below run onto area of clypeal fovea.....*Cratojoppa maculiceps*

First lateral area smooth with some strong punctures at sides; Post-petiole smooth; Areola small, elongate, very narrow and rugose; no line on face.....*Cratojoppa maculata*

DESCRIPTION

Cratojoppa maculata Cameron

Cratojoppa maculata Cameron, 1907. Tijdschr. V. Ent., 50: 74. F. key, des. Type: F, India: Sikkim (LONDON).

Cratojoppa maculata: Morley, 1915. Revision of the Ichneumonidae in the British Museum, 4: 110. M, F. des. India: Assam: Mangaldai. Sikkim. Burma: Mergui. Hainan Is.: Mt. Wuchi. Hong Kong.

Cratojoppa maculata: Heinrich, 1937. Ann. & Mag. Nat. Hist., (10) 20: 262. F. syn. notes.

Cratojoppa maculata: Townes, Townes & Gupta, 1961. Mem. Amer. Ent. Inst., 1: 411. Burma. India. Hainan Is. Hong Kong.

Cratojoppa maculata: Heinrich, 1969. Ent. Tidskr., 90: 104. M, F. key, des. India: Sikkim. China: Hainan I. Hong Kong. Burma: Mergui; Maymyo, 800 m.; Mt. Victoria, 1400 m.

Material examined: 1 ♂: Malaysia, Negeri Sembilan, Pasoh Forest Reserve, 12.v.2002, Ng. Y.F & Ruslan. 1 ♂: Malaysia, Negeri Sembilan, Pasoh Forest Reserve, 20.v.2002, Ng. Y.F & Ruslan. 1 ♂: Malaysia, Negeri Sembilan, Pasoh Forest Reserve, 13.vii.2002, Ng. Y.F & Ruslan. 1 ♂: Malaysia, Negeri Sembilan, Pasoh Forest Reserve, 10.xii.2002, Ng. Y.F & Phua G.K. 1 ♂: Malaysia, Negeri Sembilan, Pasoh Forest Reserve, 15.iii.2003, Ng. Y.F & Phua G.K.

Paratype: 1 Mt. Wuchi, Hainan. 13.6.03 1911-288 (Collection of British Natural History Museum, London).

Male.

Head. Entirely almost triangle, polished with puncture. Face 1.75X wider than high, slightly elevated at the middle and lateral area producing a groove between middle and lateral area, puncture increasingly clear and strong to the middle; clypeus transverse, 1.8X wider than high, flat, apical margin rather thick, weakly curved and pointed in the middle, with sparsely moderate puncture; clypeal fovea distinct medium size; mandible moderately punctured, not pointed to the apex with sparsely long hairs; labrum rather big, clearly extending beyond the clypeus, the base almost same length with the base of apical clypeus; malar space 1.67X smaller than mandible base; sulcus genalis granulous; frons, vertex and temple smooth; Vertex with posterior section steeply declivous behind ocelli; ocelli about equilateral, diameter lateral ocelli is smaller than the distance between two lateral ocelli; hypostomal and occipital carinae meet before mandibular base; Genae not convex from anterior view; antenna filiform, 44 flagellomeres, not enlarge at the middle, tyloid exist at segmen 9-11; scapes punctured with fine, medium long and straight hairs.

Mesosoma. Pronotum polished, smooth with evenly puncture marks; epomia strong and heading towards back line; mesopleurum polished, smooth with evenly fine and densed punctures near subalarum and lower half; speculum smooth; metapleuron punctured; mesonotum matte with strong big punctures especially in the middle; notaulus distinctly exist; scutellum flat with strong big punctures except smooth near margin, without lateral carina, not elevated from post-scutellum; post-scutellum flat and smooth; axillary trough of mesonotum wide and deep with longitudinal carina; propodeum fully carinated, from lateral view weakly convex but slightly slope from the middle to the apex; apophysis absent; basal area smooth, small and seems divided into two smaller section; areola obviously small and narrow, elongated, rugose; first lateral area smooth with some punctures at side; second lateral area with uneven strong big punctures; third lateral area very narrow with horizontal striate; petiolar area horizontally striate; coxal carinae present; propodeal spiracle elongate, almost 4X longer than width.

Metasoma. Elongate with pointed apex. Petiole flat and smooth, without median carina; Post-petiole smooth with randomly weak small punctures; tergite II with distinctly strong punctures, vertically aciculate from area between both thyridia-gastrocoelus to the apical margin; tergite III with the same punctures and with some weak aciculate in the middle at base; tergite IV and the rest with weakened punctures to the apex and with evenly short hairs; apical band present in tergite II and III; anal marks absent; latero-apical marks exist in tergites IV-VII; gastrocoelus shallow with weakly vertical striate marks; thyridia looks like transverse triangle, deeply wide, area between thyridia flat and smaller than the area of thyridia; lunula small.

Wing. Transparent with dark veins; areolet closed like diamond shape, mediella very short; stigma dark brown, narrow; radius curved, strong near mediella; nervulus not parallel to the basal vein; ramulus short; external vein of a base (second intercubitus) with a bulla; branchiella and discoidella not developed to the apical margin.

Leg. Slender with evenly coarse hairs; claws of hind tarsus simple.

Measurement. Body length: 16.84mm; front wing: 11.7mm; Flagellum: 13.75mm.

Color: Body as a whole blackish brown with yellowish. Following pale yellow: Flagellum annulus on segmen 12-32, dorsal of scapes, face, clypeus, mandibles except teeth, vertical and frontal orbit, parts of dorsal and ventral coxae of hind leg, latero-apical marks, apical band, coxae and trochanter front and hind leg, ventral femur and tibia of front and middle leg, ventral tarsus I of middle leg, half of tarsus I and rest of hind leg tarsus, the rest of the leg are dark brown. Following yellow: pronotal rige, subalarum. $\frac{1}{2}$ of lower mesopleurum, two small narrow elongated patches on mesonotum, small parts on side of apical margin of mesonotum, lateral and apical margin of scuttelum, part of near upper area of propodeal spiracle, post-scuttelum, areola, basal area, third lateral area, posterior parts of median longitudinal carina and apical transverse carina.

Female: unknown.

ACKNOWLEDGEMENTS

We are very grateful to Dr. Gavin Broad for allowing the visit and use of specimen in the collection of British Natural History Museum, London in order to identify the species. We also thank to all of staff and postgraduate students of Centre for Insect Systematic, Universiti Kebangsaan Malaysia for help in this study.

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Dikemaskini pada: Jumaat, Mac 6, 2015.

