Serangga 19(2): 39-43
ISSN 1394-5130 © 2014, Centre for Insect Systematics,
Universiti Kebangsaan Malaysia

FIRST RECORD OF *DAHLIPHORA SIGMOIDES* SCHMITZ (DIPTERA: PHORIDAE) IN MALAYSIA ON ANIMAL CARCASS IN CONCEALED ENVIRONMENT

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ABSTRACT

Dahliphora sigmoides Schmitz (Diptera: Phoridae) was recorded for the first time in Malaysia, occurring on animal carcass placed in garbage bin at Forensic Science Simulation Site, Universiti Kebangsaan Malaysia, Bangi. This finding expands the knowledge of its distribution in this region. Notes on the species description, its locality and collection procedure are presented herein.

Keywords: Phoridae, scuttle flies, forensic entomology, carcass, decomposition

ABSTRAK

Dahliphora sigmoides Schmitz (Diptera: Phoridae) kali pertama direkodkan di Malaysia, ditemui pada bangkai haiwan yang ditempatkan di dalam tong sampah di Tapak Simulasi Sains Forensik, Universiti Kebangsaan Malaysia, Bangi. Penemuan ini meluaskan pengetahuan dan sebaran spesies ini di wilayah ini. Catatan mengenai ciri-ciri spesies ini, tempat ditemui dan prosedur persampelan dihuraikan.

Kata kunci: Phoridae, lalat phorid, entomologi forensik, bangkai, pereputan

INTRODUCTION

Genus *Dahliphora* Schmitz is one of many genera in Family Phoridae with limited knowledge on its ecology, taxonomic description and distribution. This genus can be differentiated from other genera of Phoridae by having third antennal segment drawn out into long, tapered extension bearing apical arista, lacking of bristles on legs with apically separated veins 1 and 3 (Disney 1994). At present time, only five known species have been described, i.e. the Australasian *D. sigmoides* (Schmitz 1928) from the Bismarck Archipelago and subsequently specimens from Sulawesi (Indonesia) in the University of Cambridge Museum of Zoology, the Neotropical *D. crenaticornis*, *D. antennalis* and *D. dispar* (Borgmeier 1961; Borgmeier & Prado 1975) and *D. zaitzevi* from the far east of Russia (Michailovskaya 2002). In this paper, we report the first record of *D. sigmoides* in Malaysia, found from an animal carcass placed in a concealed environment, i.e. a garbage bin.

MATERIALS AND METHODS

From 4 October 2010 to 22 January 2011, we conducted a project to study the biodiversity of scuttle flies of forensic importance. The study took place at Forensic Science Simulation Site, Universiti Kebangsaan Malaysia, Bangi, Selangor (2.91ºN, 101.79ºE), a fieldwork facility surrounded by a secondary forest and research buildings. Male rabbit carcasses (*Oryctolagus cuniculus*), weighed approximately 2.07-

2.95 kg were used to simulate decomposition process and each was placed in a black polycarbonate garbage bin (42.6 mm top diameter x 46.0 cm height) and a luggage (58.5 cm x 42.0 cm x 22.4 cm dimensions). Sampling procedure was performed by bringing in the garbage bin or luggage into a modified Malaise trap located inside a portable cabin unit. This step was to avoid contamination of insects from outside and to prevent scuttle flies escaping to the environment during samplings.

Samplings were carried out daily during the first 11 days, every alternate day from 11th day until 27th day and every two days from 27th day until 40th day. During sampling, garbage bin lid or luggage was opened and this allowed the flying insects to disperse in the Malaise trap. Trapped flying insects were aspirated into a jar and killed with chloroform. All specimens were preserved in 70% ethanol. In the lab, scuttle flies were photographed and grouped basedon their genus. An unknown species of *Dahliphora* (Fig. 1) collected on Day 10 from the carcass in garbage bin was brought to the third author to confirm its identity. Specimen was processed by using slide mounting technique (Disney 1994). Due to the unknown effect of storage in ethanol causing the specimen bleached, comparative

Figure 1. Right face of *D. sigmoides* ♂ (Bar ≈ 0.5 mm)

analysis on the morphology of the specimen with known species from the third author's reference collection was made which later confirmed its identity as *D. sigmoides* ♂. In the key to the world species (Borgmeier & Prado 1975), it runs to couplet 3 on page 47.

RESULT AND DISCUSSION

The specimen length is 0.8 mm and its body is dark brown. Frons brown, covered with dense microtrichia and there are no bristles on the frons beyond the pre-ocellars bristles. Postpedicels are brown with apical long pseudoarista.Palps pale brown. Thorax dark brown, with 2 notopleural bristles. Mesopleuron bare. Scutellum with 4 unequal bristles, the posterior pair being the weaker. Abdominal tergites brown, broader than long. Venter grayish brown. Hypopygium brown with pale, short anal tube. Hind femur brown but mid and front yellow. Fore tarsus with posterodorsal hair palisade on segments 1-3 with three transverse combs of hairs, fifth tarsal segment longer than fourth. No hair palisade on dorsal mid and hind tibiae. Wing 0.64 mm long. Costal index 0.48. Costal ratio 1:1. No hair at base of vein 3 and no axillary bristles. Sc free. Thin veins as Fig. 2. Haltere brown.

The association between *D. sigmoides* with animal carcass could not be ascertained because only a single male specimen was recovered from the animal carcass without the presence of its female, larva or pupa. Although information on its biology and its female description is limited, we hope this finding extends the knowledge onits geographical

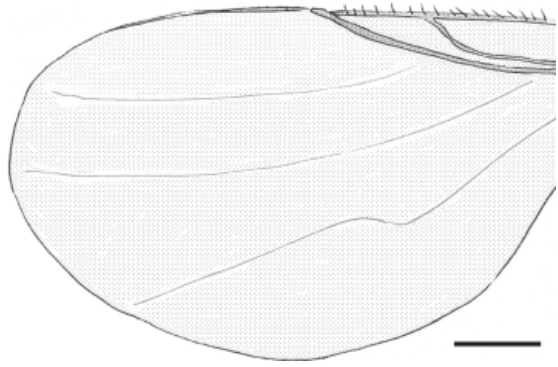

Figure 2. Left wing of *D. sigmoides* ♂ (Bar ≈ 0.1 mm)

distribution as well as nurtures interests for further studies on this rare scuttle fly species from this region.

ACKNOWLEDGEMENTS

Scuttle fly identification training and learning visits of the first author to the Department of Zoology, University of Cambridge, United Kingdom are funded by Geran Galakan Penyelidik Muda (GGPM-2014-018). The third author's studies of Phoridae are currently supported by a grant from the Balfour-Browne Trust Fund (University of Cambridge). Animal killing complies with ethical requirement by the funding institution, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, FSK/FRSIC/2011/Noor&Zuha/16-November/404-November-2011-November-2012-ar-cat-2.

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