

Research Note

A report on the pupae of *Desmometopa* sp. (Diptera: Milichiidae) recovered from a human corpse in Malaysia

Kumara, T.K.¹, Abu Hassan, A.¹, Che Salmah, M.R.¹ & Bhupinder, S.²

¹ School of Biological Sciences, Universiti Sains Malaysia, 11800, Penang, Malaysia

² Department of Forensic Medicine, Penang Hospital, 10990 Residensi Road, Penang, Malaysia

Corresponding author email: aahassan@usm.my

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Abstract. The pupae of *Desmometopa* sp. (Diptera: Milichiidae) were collected from a human corpse found indoor in active decay stage together with the larvae of *Sarcophagidae*, *Synthesiomyia nudiseta* (Wulp), *Chrysomya megacephala* (Fabricius) and *Chrysomya rufifacies* (Macquart). This research note is the first report of the *Desmometopa* sp. recovered from a human corpse in Malaysia.

A corpse constitutes a dynamic system that supports a rich community of arthropods (Pujol-Luz *et al.*, 2006). These insects feed on the body and live or breed in and on the corpse, thus depending on their biological preferences and on the state of body decomposition (Benecke, 2004). The milichiids are small, acalyptate flies, usually black or silvery and are sometimes fairly common in open areas (Triplehorn & Johnson, 2005). Their genae are usually narrow, if broad then bristles confined to lower margin, proboscis variable, but often slender with vein M complete (Oldroyd, 1970; Triplehorn & Johnson, 2005). The catalog of the world species of *Desmometopa* was provided by Sabrosky (1983). Although the biology of the majority of this species is unknown, many milichiids have general saprophagous or coprophagous larvae, developing in decaying matter ranging from rotting fish and animal dung to rotting plant material (Scudder & Cannings, 2006). According to Bohart & Gressitt (1951) the Milichiidae were rarely

seen on carrion but some were attracted to human excrement.

In this paper, the pupae of *Desmometopa* sp. were retrieved from a human corpse in active decay stage of decomposition. The deceased was a 61 years old female found dead on the first floor apartment block in Penang Island, Malaysia. The corpse was found on May 28, 2008 at 8.15 pm and brought to Department of Forensic Medicine, Penang Hospital. It was kept in morgue cooler at the temperature of 4 ± 3 °C and the entomological specimens was collected the next day at 10.15 am. According to the investigating officer, the deceased was found on her bed in an enclosed environment and no foul play suspected. Besides the *Desmometopa* sp. pupae, other entomological specimens collected were third instar larvae of *Sarcophagidae* and *Synthesiomyia nudiseta* (Wulp) and second instar larvae of *Chrysomya megacephala* (Fabricius) and *Chrysomya rufifacies* (Macquart).



Figure 1. Pupa of the *Desmometopa* sp. collected from the corpse.



Figure 2. M-shaped marking on the frons (arrow).

A total of 9 pupae of *Desmometopa* sp. (3.5 – 5.0 mm, in length) were retrieved from the corpse (Figure 1). Among these 9 pupae, 2 adults emerged and were later identified as genus *Desmometopa* (Diptera: Milichiidae) by Dr. Laszlo Papp, Hungarian Natural History Museum, Hungary. The *Desmometopa* spp. is small (1.0 - 2.5 mm) black flies distinguished at once by the black, M-shaped marking on the frons (Figure 2). Adults are attracted to odours and have occurred in hospital laboratories and operating room, dairy cheese rooms, urinals, latrines and butchers (Smith, 1986). This genus also has been reported to breed in human excrement and poultry manure (Hulley, 1983; Smith, 1986). The distributions of *Desmometopa* spp. in South East Asia have been reported in Indonesia (Sabrosky, 1983), Taiwan (Papp, 2005), and Thailand (Papp *et al.*, 2006).

Heretofore this genus has not been reported on human corpses in Malaysia. Two female specimens of this fly obtained from Batu Caves, Malaysia were identified as 2 different species of *Desmometopa* spp. (Sabrosky, 1964). Further another species was collected from Tahan River, Pahang and identified as *Desmometopa propeciliata* (Sabrosky, 1983). In this case report the *Desmometopa* sp. pupae was recovered from the indoor human corpse though this genus is not commonly found in indoor condition. In Oahu, Hawaii, Shalaby *et al.* (2000) did a study on an hanging pig carcass and reported 24 families of insects, including Milichiidae.

According to Smith (1986) the life history and immature stages of this genus are unknown. Similarly, Sabrosky (2007) mentioned that although many species have been described from the Australasian/Oceanian Regions, little is known of their biology. In Malaysia neither the life cycle nor the biology of this genus is known for an accurate PMI to be estimated as in this case.

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