Tropical Biomedicine 25(3): 252–253 (2008)

Research Note

On the occurrence of *Musca domestica* L oviposition activity on pig carcass in peninsular Malaysia

Heo Chong Chin[1], Mohamad Abdullah Marwi[1], John Jeffery[1], Hiromu Kurahashi[2] and Baharudin Omar[3*]
[1]Department of Parasitology & Medical Entomology, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia.
[2]International Department of Dipterology, Hikawadai 1-2-21, Higashikurume City, Tokyo 203-0004, Japan.
[3]Department of Biomedical Science, Faculty of Allied Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia.
*Corresponding author email: bahar@fskb.ukm.my
Received 26 April 2008; received in revised form 31 July 2008; accepted 2 August 2008

Abstract. A forensic entomological study conducted in an oil palm plantation in Tanjung Sepat, Selangor, Malaysia on 3 August 2007 revealed that a housefly, *Musca domestica* Linnaeus oviposited its eggs on a freshly dead pig. This finding indicated that housefly might play an important role in forensic investigation in determining post-mortem interval (PMI), although it was not yet found in human corpses or any animal carrion. This preliminary paper presented a first record of *Musca domestica* eggs found on animal carcass in the country.

The housefly, *Musca domestica*, has a worldwide distribution. Adults readily enter dwelling in order to colonize decomposing remains as reported in the United State. They are among the first flies attracted to excrement and also are attracted to carrion, usually after the blowflies. The presence of the species on a fresh corpse is rare, unless excrement is present or gut contents are exposed (Chapman, 1944; Greenberg, 1971; Smith, 1986).

Lee *et al.* (2004) reviewed 448 entomological specimens from human cadavers in the last 3 decades (1972-2002), and found no *M. domestica* eggs or larvae on dead bodies in Malaysia. Nor Afandy *et al.* (2003) who reviewed 12 cases from Kuala Lumpur Hospital (KLH) and Hospital of Universiti Kebangsaan Malaysia (HUKM) did not see any stages of *M. domestica* in the year 2001. Both review papers indicated that *M. domestica* was uncommon species of decomposer on human cadavers in our country.

Here we report the first case of *M. domestica* eggs found on a pig carcass. On 3 August 2007, a forensic entomology study using pig carcasses was conducted in an oil palm plantation in Tanjung Sepat, Selangor, Malaysia (approximately 85 km from Kuala Lumpur). The pigs died due to pneumonia and were immediately put in the field to study the process of fauna succession on a dead animal.

Within the first hour after placement, several blowflies (Calliphoridae) visited the pig carcasses and oviposited their eggs around the mouthpart. Ants (Formicidae) were also sighted on the scene. We observed a female adult fly, *Musca domestica* ovipositing on the dorso-lateral part of the body of the pig after two hours of being placed in the environment.

Black ants (Formicidae: Ponerinae: *Diacamma* sp.) already present on the pig carcass immediately predated on *M. domestica* eggs after the eggs were left by the female fly. This activity may explain for the non-finding of *M. domestica* stages on corpses or carcasses in the case of the presence of predators.

Some of the eggs were collected and reared in the laboratory to adult stage. The larvae were given mice chow instead of beef liver. It took around 12 days to complete its life cycle from eggs to emergence of adult flies. The adult fly were then killed in chloroform 10%, identified, pinned, and kept in the Department of Parasitology & Medical Entomology, Faculty of Medicine, Universiti Kebangsaan Malaysia.

The other species of muscid flies which is important in forensic investigation is *Ophyra spinigera* (Stein). Adults and larvae of *O. spinigera* were reported as major colonizer of monkey carcass, which was highly decomposed or in the late stage of decomposition (Omar *et al.*, 1994). In our study, larvae of *O. spinigera* were sighted on the pig carcass at the advance-decay stage of decomposition.

Musca domestica is a hemisynantrophy fly as reported by Omar *et al.* (2003) and are frequently seen inside human dwellings. Their presence on fresh pig carcass indicate that this species maybe is an early visitor. In this paper we document *M. domestica* egg-laying activity on pig carcass

Acknowledgement. The authors wish to thank Mr. Ley Ah Kwee for supplying the pig and providing accommodation and also the Department of Parasitology & Medical Entomology, Faculty of Medicine, Universiti Kebangsaan Malaysia for their laboratory facilities provided.

REFERENCES

Chapman, R.K. (1944). An interesting occurrence of *Musca domestica* L. larvae in infant bedding. *Canadian Entomology* **76**: 230-232.

Greenberg, B. (1971). *Flies and Disease* (Vol. 2). Princeton University Press, Princeton, New Jersey.

Lee, H.L., Krishnasamy, M., Abdullah, A.G. & Jeffrey, J. (2004). Review of forensically important entomological specimens in the period of 1972-2002. *Tropical Biomedicine Supplement*: 69-75.

Nor Afandy Hamid, Omar, B., Mohd. A.M., Ahmad, F.M.S., Halim Mansar, A., Siew, S.F. & Norhayati, M. (2003). A review of forensic specimens sent to forensic entomology laboratory Universiti Kebangsaan Malaysia for the year 2001. *Tropical Biomedicine* **20**(1): 27-31.

Omar, B, Mohd. A.M., Sulaiman, S. & Oothuman, P. (1994). Dipteran succession in monkey carrion at a rubber tree plantation in Malaysia. *Tropical Biomedicine* **11**(1): 77-82.

Omar, B., Mohd. A.M., Azliza, A., Zuha, R.M. & Jeffery, J. (2003). Synanthropic index of flies (Diptera: Muscidae and Calliphoridae) collected at several locations in Kuala Lumpur and Gombak, Malaysia. *Tropical Biomedicine* **20**(1): 77-82.

Smith, K.G.V. (1986). *A Manual of Forensic Entomology*. Cornell University Press, Ithaka New York.