

STUDIES ON MEDICALLY IMPORTANT FLIES IN THAILAND. I.  
Discovery of *Calliphora* Species First in Thailand  
(Diptera: Calliphoridae)

BY

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ABSTRACT

Species of flies, *Calliphora vomitoria* (Linné) and *C. pattoni* Aubertin, found for the first time in Thailand are reported, together with detailed illustrations of genitalia. These are known to be Palearctic species, which are commonly found in Europe or northern parts of Asia. These flies were found in Doi Inthanon, the highest mountain in Thailand, which belongs to the Oriental region.

INTRODUCTION

Flies of the order Diptera are quite frequently found in slaughter houses, markets, on ripe fruits, feces, carrion, and various rotten organic materials, as well as in human dwellings. These flies, therefore, have long been thought to be responsible for transmission of various bacteria including pathogenic ones in Thailand and other countries in tropical regions. Such transmission of bacteria has long been proved experimentally for bacillary dysentery, typhoid fever, and other salmonellosis, poliomyelitis, etc.<sup>1-3,8,9)</sup>. Beside this, various species of flies are known to cause many types of acute myiasis in man and animals<sup>4,5,11,12)</sup>.

Because of its medical importance we intended to study each synanthropic species

of flies in Thailand. Faunistic research of Calypterate muscoid flies has not been made extensively in Thailand.

During the period from August 28 to October, 18 and December 8 to 33, 1975, we made fly surveys in Thailand. Flies from various parts of Thailand were collected for studying their medical importance as well as for other purposes. During these surveys, *Calliphora vomitoria* (Linné) and *C. pattoni* Aubertin were found in the highest mountain of Thailand. No reports are available of these species from this country. Hereafter, descriptions of both species are given with special reference to male and female genitalia.

KEY TO THE SPECIES OF CALLIPHORA  
IN THAILAND

Hairs on post-buccae all black; male and

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female genitalia as shown in Plate 2 (Figs. 9-16) ..... *C. pattoni*  
 Hairs on post-buccae pale yellow intermixed with black ones; male and female genitalia as shown in Plate 1 (Figs. 1-8) ..... *C. vomitoria*

#### DESCRIPTION

##### *Calliphora vomitoria* (Linné)

*Musca vomitoria* Linné, 1758. Syst. Nat. (ed. X) i: 595.

Body length: 8.0-13.5 mm.

Head: Eyes in ♂ slightly separated, but widely separated in ♀; frons black; parafrontalia dark grey to black with fine hairs; medianae reddish brown to black; jowls dark grey to black; hairs on post-buccae pale yellow intermixed with black ones; antennae black, the basal part of the third segment reddish brown; palpi orange.

Thorax: Dull bluish-black with whitish pollen; acrostichal bristles 2+3; dorsocentral bristles 3+3; intra-alar bristles 1+2; presutural bristle present; humeral bristles 4; posthumeral bristles 3; notopleural bristles 2; supra-alar bristles 3; post-alar bristles 3; apicoscutellar bristles 1 pair; discoscutellar bristles 1 pair; lateroscutellar bristles 3 pairs; propleuron hairy; thoracic spiracles brownish black.

Wings: Hyaline, slightly infuscated at base; wing veins dark brown; basicosta black; subcostal sclerite brown, without hairs; upper and lower squamae dark brown, lower lobe hairy. Halteres brown.

Legs: Black.

Abdomen: Opaquely dark blue to bluish black with very sparse dusting; tergite 1+2 darker than the others; sunstyli of male genitalia long and slender, and almost as heavily chitinized as the inner forceps (Plate 1: Figs. 1-8).

Specimens examined: THAILAND:

4♂♂ 66♀♀ nr. Top, 2300m, Doi Inthanon, 17 IX 1975, R. Kano & H. Kurahashi; 21♂♂ 91♀♀, Top, 2667m, Doi Inthanon, 19 IX 1975, R. Kano & H. Kurahashi; 25♂♂ 87♀♀, Top, 2667m, Doi Inthanon, 23 IX 1975, R. Kano & H. Kurahashi; 2♂♂ 3♀♀, 1200m, Doi Inthanon, 19 XII 1975, S. Shinonaga.

Distribution: Thailand, India, Nepal, S. China, Taiwan, Philippines, Japan, Korea, Siberia, N. America, Hawaiian Is., Europe, Lapland, and Morocco<sup>7,10</sup>).

Bionomics: This species was, thus far, found only in Doi Inthanon, the highest mountain in Thailand which is 2667 m above the sea level, located in Chiangmai province, the northern part of the country. In summer, adults are much abundant between 2300 m above the sea level and the top of the mountain where the temperature is about 15-20°C during day time. In winter the flies might migrate downward to the place of about 1200 m above the sea level where the temperature is about 20°C. The larvae of this species breed in human feces, carrion, and rotten animals<sup>9</sup>. Males are frequently found in evergreen forests, but females are abundant on human feces, garbage piles, and decomposed materials around human dwellings. The population of this species is much greater than that of *C. pattoni* in the same area.

##### *Calliphora pattoni* Aubertin

*Calliphora pattoni* Aubertin, 1931. Ann. Mag. Nat. Hist. (10) viii: 615.

Body length: 8.0-11.5 mm.

The external features, similar to those of *C. vomitoria* except for the following characteristics:

Hairs on post-buccae all black; basal part of 3rd antennal segment rufous; outer forceps of male genitalia broad and less chitinized than the inner forceps (Plate 2:

Figs. 9–16).

Specimens examined: THAILAND: 1♂ 4♀, nr. Top, 2500 m and Top, 2667 m, Doi Inthanon, 17 IX 1975, 19 IX 1975, 23 IX 1975, R. Kano, W. Tumrasvin & H. Kurahashi.

Distribution: Nepal, Thailand, India, Burma and Taiwan<sup>7,10</sup>.

Bionomics: This species is quite rare in Thailand. In summer, this species is found only in Doi Inthanon, between 2500 m above the sea level and the top of the mountain where the temperature is about 15°C and humidity is relatively high. This species is usually found in evergreen forests and few flies are found on garbage piles around human dwellings. According to Senior-White *et al.*<sup>10</sup>, this species is larviparous and breeds in various kinds of decayed material. It is not clear yet, however, whether it is larviparous or oviparous. We examined female internal sexual organs, and we think that the ovipositor of this species is oviparous type.

Remarks: This species is closely related to *Calliphora lata* Coquillett, 1898, but it differs from the latter in the following features. In *C. pattoni*, mesothoracic spiracles dark brown, outer forceps broad and rounded apically, anterior paramere with 5 bristles, posterior half of 6th sternite of female broad. In *C. lata*, mesothoracic spiracles light orange, outer forceps banana-shaped and pointed apically, anterior paramere with 3 bristles, 6th sternite of female more slender than that of *C. pattoni*.

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## EXPLANATION OF FIGURES

Plate 1. *Calliphora pattoni* Aubertin

- Fig. 1. Male 5th sternite.  
Fig. 2. Epandrium, and inner and outer forceps, lateral view.  
Fig. 3. Inner and outer forceps, posterior view.  
Fig. 4. Anterior and posterior parameres.  
Fig. 5. Phallosome.  
Fig. 6. Sternites of female.  
Fig. 7. 6th to 9th tergites of female.  
Fig. 8. 6th to 9th sternites of female.

Plate 2. *Calliphora vomitoria* (Linné)

- Fig. 9. Male 5th sternite.  
Fig. 10. Epandrium, and inner and outer forceps, lateral view.  
Fig. 11. Inner and outer forceps, posterior view.  
Fig. 12. Anterior and posterior parameres.  
Fig. 13. Phallosome.  
Fig. 14. Sternites of female.  
Fig. 15. 6th to 9th tergites of female.  
Fig. 16. 6th to 9th sternites of female.



