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BRIEF COMMUNICATION

TWO NEW RECORDS OF *Isomyia paurogonita* FANG AND FAN, 1986 AND *Sumatria latifrons* Malloch, 1926 (DIPTERA: CALLIPHORIDAE) FROM NORTHERN THAILAND, WITH REVISED KEY TO THE SPECIES OF *Isomyia*

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SUMMARY

During the annual fly survey at Doi Nang Kaew in Doi Saket District, Chiang Mai Province of Thailand in 2011, *Isomyia paurogonita* Fang & Fan, 1986 (Diptera: Calliphoridae) and *Sumatria latifrons* Malloch, 1926 (Diptera: Calliphoridae) were collected for the first time in Thailand. They are the rare species of the subfamily Rhiniinae (tribe Cosminini). Prior to this finding, fifteen species of *Isomyia* and two species of *Sumatria* were recorded from Thailand. Therefore, 96 blow fly species have been found in this country. These new locality records of both flies are very important for further research on their biology and ecology in Thailand.

KEYWORDS: Blow fly; *Isomyia paurogonita; Sumatria latifrons;* Key; Thailand.

During fly surveys conducted in forested and mountainous areas in 2011, a large number of blow flies were collected from the mountain, namely Doi Nang Kaew, in Doi Saket District of Chiang Mai Province, northern Thailand. The specimens were then pinned, labeled, and identified by the first and last authors. The identification revealed that some of the blow flies collected are *Isomyia paurogonita* Fang and Fan, 1986 (Fig. 1 A, B) and *Sumatria latifrons* Malloch, 1926 (Fig. 2 A, B). The voucher specimens were deposited in the collection of the International Department of Dipterology, Japan.

Recently, 94 blow fly species were found and recorded from Thailand[1,2]. They were classified to nine subfamilies; i.e., Ameniinae, Calliphorinae, Luciliinae, Phumosiinae, Polleniinae, Bengaliinae, Auchmeromyiinae, Chrysomyinae, and Rhiniinae[1]. The genera *Isomyia* and *Sumatria* are included in the tribe Cosminini of the subfamily Rhiininae. Fifteen species of *Isomyia* have been previously recorded from Thailand including *Isomyia borneensis* (Perris, 1951), *Isomyia cupreoviridis* (Malloch, 1928), *Isomyia dotata* (Walker, 1856), *Isomyia facialis* James, 1970, *Isomyia hetauda* Kurahashi & Thapa, 1994, *Isomyia lugubris* James, 1970, *Isomyia oestracea* (Séguy, 1934), *Isomyia pichoni* (Séguy, 1934), *Isomyia pictifacies* (Bigot, 1877), *Isomyia pseudonepalana* (Senior-White, Aubertin & Smart, 1940), *Isomyia pseudoviridana* (Peris, 1952), *Isomyia singhi* Kurahashi & Thapa, 1994, *Isomyia versicolor* (Bigot, 1877), *Isomyia viridaurea* (Wiedemann, 1819), and *Isomyia watanasaki* Kurahashi & Bunchu, 2011[1,2]. Meanwhile, only two species of *Sumatria*, *Sumatria chiekoae* Kurahashi & Tumrasavin, 1992 and *Sumatria brevis* James, 1966 have already been recorded from Thailand. By adding two new species to the existing records, 96 blow fly species have been listed in Thailand.

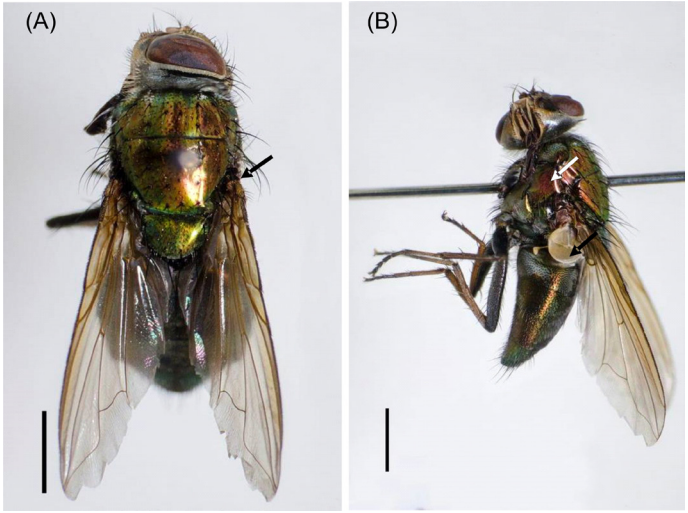

Fig. 1 - *Isomyia paurogonita* Fang and Fan, 1986, female (A) Habitus, dorsal view (bar = 2 mm), Arrow indicates a fuscous basicosta ; (B) Habitus, lateral view (bar = 2 mm), White arrow indicates a mesopleuron largely clothed with yellow hairs; while black arrow points a tongue-shape thoracic squama.

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As for *Isomyia paurogonita*, it was firstly described in the Yunnan Province, China and hitherto was known in Malaysia (Borneo, Malaya)[3]. However, the knowledge of its bionomics is limited. HEO *et al.*[3] reported the adult morphology and collection places as well. This fly species was found in forested and rural areas in peninsular Malaysia at various altitudes. The key to Oriental *Isomyia* species of the Viridurea has been previously reported by JAMES[4]. To update the taxonomic key of the genus *Isomyia* of Thailand, the latest edition key of KURAHASHI & BUNCHU[6] is revised and provided in this report.

Key to the species of *Isomyia*

1. Subcostal sclerite (Sc) next to humeral cross vein (h) bare below..... 2
- Sc next to h setulose below..... 17

2. Body very stout; thoracic squama strongly lobulate..... 3
- Body usually slender; thoracic squama not lobulate, like tongue-shape 11

3. Lunule with several short black setulae..... 4
- Lunule bare 5

4. Body entirely black, with purplish tinge; mesonotum and abdomen with cinereous pollinosity which is rather uniform in density except on posterior margins of tergites .....*I. lugubris* James
- Body entirely or largely metallic green, blue or purple in ground color; mesonotum more or less pollinose and tergite 5 green dorsally, with dense, ashy pollinosity which, at least from posterior view, largely conceals background in striking contrast to the dark blue to purple on tergites.....1+2-4 [No record from Thailand].....*I. chalconotum* James

5. Both mesopleural hairs and hairs of other pleural areas, soft and yellow to golden, except for usual black setulae just below notopleural suture 6
- Mesopleural hairs more extensively black than indicated above, with some soft black hairs on mesopleuron, sometimes remote from notopleural suture, and on sternopleuron 9

6. Basicosta bright yellow; epaulet yellowish 7
- Basicosta black; epaulet black..... 8

7. Pleura and abdomen densely pollinose in male, less so in female, but dorsum of tergite 5, when viewed laterally at angle, with tessellated pattern of pollinosity; black lateral bristles on tergite 1+2 surrounded, at least on three sides, by pale yellow hairs....*I. viridaurea* (Wiedemann)
- Pleura and abdomen less densely pollinose, without tessellated pattern; black lateral bristles on tergite 1+2 surrounded by black hairs . ..... *I. pichoni* (Séguy)

8. Tergites 3-4 distinctly marginal banded, with median stripe in male, broadly metallic banded with copper tinge in female; wing hyaline in male and female, with distinct fuscous cloud apically in female; parafrontal in female about 1/2 as wide as frontal stripe at middle of frons; hind tibia with 1 *av* in male.....*I. borneensis* James
- Tergites 3-4 without any marginal band and median stripe; wing hyaline, clear in male and with apical unclear/indistinct fuscous in female; parafrontal in female subequal to frontal stripe at middle of frons; hind tibia without *av* in male [No record from Thailand].....*I. electa* (Villeneuve)

9. Alar and thoracic squamae wholly dark brown to black.....*I. oestracea* (Séguy)
- Alar and thoracic squamae white, at least at base 10

10. Alar squama, in both sexes, white on basal 1/2 or more; thoracic squama white at base; larger species, 10.0-11.0 mm in length ..... *I. pictifacies* (Bigot)
- Alar and thoracic squamae wholly white in female; alar one white only anteroventrally in male; smaller species, 7.0-9.0 mm in length ..... *I. facialis* James

11. Basicosta yellow; male sternite 5 with normal shaped lateral lobes.....*I. pseudonepalana* (Senior-White, Aubertin & Smart)
- Basicosta fuscous to black..... 12

12. Mesopleuron entirely or largely covered with black hairs except for several yellow ones on lower margin..... 13
- Mesopleuron largely clothed with yellow hairs on lower 1/3 to 1/2 and along posterior margin before row of yellow pilosity..... 15

13. Mesopleuron entirely covered with black hairs, with row of long black pilose hairs along posterior margin..... 14
- Mesopleuron largely clothed with black hairs, yellow hairs present on lower small part, with row of yellow pilosity .....*I. versicolor* (Bigot)

14. Wing hyaline; lunule blackish setulose; AS3 largely fuscous; gena black; body metallic green; tergites 3--4 with fine black longitudinal stripe; hypopygium prominent, metallic green..... *I. pseudoviridana* Peris
- Wing smoked on apical 1/2; lunule bare; antennae entirely yellowish orange; gena reddish on anterior 2/3; body dark olivious green, with bronzy tinge; tergites 3-4 with triangular blackish spot; hypopygium normal, with GS1 dark olivious green .....*I. singhi* Kurahashi & Thapa

15. Lunule distinctly with black setulae .... *I. paurogonita* Fang & Fan
- Lunule bare..... 16

16. Parafacial in profile narrower than width of AS3; parafacial setulae fine, white, shorted than width of AS3 in lateral view [No record from Thailand]..... *I. fulvicornis* (Bigot)
- Parafacial in profile 1.5-2.0 x as width of AS3: parafacial setulae usually black, if partially white, the longest black ones exceeding width of AS3.....*I. hetauda* Kurahashi

17. Thorax rather densely pollinose, with three distinct broad black stripes [No record from Thailand] ..... *I. malayensis* (Townsend)
- Thorax inconspicuously pollinose, with indistinct dark spots, but no stripes..... 18

18. Thoracic squama lobulate inwards; setulae on ventral surface of sc yellowish, fine; mesopleural and pteropleural hairs yellow ..... *I. cupreoviridis* (Malloch)
- Thoracic squama not lobulate; setulae of sc on ventral surface of wing black; mesopleural and pteropleural hairs black to fuscous..... 19

19. Head holoptic in male; male cercus free from one another ..... *I. dotata* (Walker)
- Head subholoptic in male; male cercus fused with one another .....*I. watanasaki* Kurahashi & Bunchu

Sumatria latifrons, whose type locality is Sumatra, Indonesia, was previously recorded from Malaysia (Borneo, Malaya) and Indonesia (Sumatra)[7]. Few reports related to its bionomics can be found. The previous report only indicated that adults were found on decaying animals in mountainous areas[5]. This species was already included in the key of KURAHASHI & BUNCHU, but had not yet been recorded in Thailand at that time[6]. These last authors mentioned that this species will be most probably found by future surveys in the southern part. Interestingly, we found it in Chiang Mai Province in the northern part.

Adults of *S. latifrons* can be identified by the following three important characteristics: 1) arista shortly pilose on ventral side, 2) thorax wholly brownish black, pollinose stripes limited to presutural area and gradually disappearing, and 3) femora partly testaceous or bright orange (Fig. 2).

Fig. 2 - *Sumatria latifrons* Malloch, 1926, female (A) Habitus, dorsal view (bar = 1 mm), Arrow indicates a pollinose stripe on brownish black thorax; (B) Habitus, lateral view (bar = 2 mm), Black arrow indicates a shortly pilose arista (Only ventral side); while white arrow points a bright orange femur.

Note on specimens, localities, altitudes, collection dates and collectors:

Isomyia paurogonita Fang and Fan, 1986

Specimens examined. THAILAND: 1 ♀, Chiang Mai Province, Doi Saket District, Doi Nang Kaew, 1,016 m, 10.iii.2011, K. Moophayak; 4 ♂, same locality, 1,142 m, 13.xi.2011, H. Kurahashi.

Sumatria latifrons Malloch, 1926

Specimens examined. THAILAND: 1 ♀, Chiang Mai Province, Doi Saket District, Doi Nang Kaew, 1,142m, 13.xi.2011, H. Kurahashi; 1♀, same locality, 1,016m, 13.xi.2011, H. Kurahashi.

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RESUMO

Dois novos registros de *Isomyia paurogonita* Fang e Fan, 1986 e *Sumatria latifrons*, Malloch, 1926 (Diptera: Calliphoridae) do norte da Tailândia, com chave revisada para as espécies de *Isomyia*

Durante a pesquisa anual de moscas em Doi Nang Kaew no Distrito de Doi, Província de Chiang Mai, Thailandia, em 2011, *Isomyia paurogonita* Fang e Fan, 1986 (Diptera: Calliphoridae) e *Sumatria latifrons,* Malloch, 1926 (Diptera: Calliphoridae) foram coletados pela primeira vez na Tailândia. São espécies raras da sub-família Rhiniinae (tribo Cosminini). Antes deste achado, 15 espécies de *Isomyia* e duas de *Sumatria* foram relatadas na Tailândia. Portanto, 96 espécies de "blow flies" foram encontradas neste país. Estes achados locais de ambas as moscas são bastante importantes para a posterior pesquisa de sua biologia e ecologia na Tailândia.

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