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### NOTE

#### NEW RECORDS OF *CHRYSOMYA PUTORIA* AND *C. THANOMTHINI* (DIPTERA: CALLIPHORIDAE) FROM INDIA, WITH A REVISED KEY TO THE KNOWN INDIAN SPECIES

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The cosmopolitan genus *Chrysomya* Robineau-Desvoidy, 1830 comprises 36 species across the globe. The members of this necrophagous group are associated with carrion, garbage, ordure, and other fermenting substances. Due to their feeding habits, the *Chrysomya*, or blow flies, provide an excellent spatio-temporal indicator

for forensic entomologists. Furthermore, blowflies are incriminated as agents of disease or vectors in medicine, public health, and veterinary (Lutz et al. 2017).

To date, nine species are known from the Indian region (excluding *Chrysomya defixa*, which is of a dubious record from India) (Senior-White et al. 1940; Bharti 2011). *Chrysomya putoria* (Wiedmann, 1830) and *C. thanomthini* Kurahashi & Tumrasvin, 1977 are the new additions to the group. Both species were collected from Himachal Pradesh. An updated key to the known Indian species is provided herewith.

The specimens were collected with sweeping nets from apple orchards in the state of Himachal Pradesh. The material was examined under a Nikon SMZ 1500 stereozoom microscope. Digital images of *C. putoria* and *C. thanomthini* were captured using MP Evolution Digital camera (with auto-montage software, Syncroscopy, Division of Synoptics Ltd.) mounted on the microscope. The images were then processed with Adobe Photoshop CS5. The specimens are housed at Punjabi University, Patiala (PUPDC: Punjabi University Patiala Diptera collection).

## NEW RECORDS OF *CHRYSOMYA PUTORIA* AND *C. THANOMTHINI* (DIPTERA: CALLIPHORIDAE) FROM INDIA, WITH A REVISED KEY TO THE KNOWN INDIAN SPECIES

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### *Chrysomya putoria* (Wiedemann, 1830) (Images 1, 2)

Material examined: #101 PUPDC, 2 ex., 24.vi.2018, female, Jubbal, Himachal Pradesh, India, 31.109°N, 77.662°E, 2,000m, coll. M. Bharti.

Distribution: India (new record), Saudi Arabia, Iran, all over Africa south of Sahara (including western Africa, northwest to Senegal and Gambia, northeast to Sudan, Eritrea and Ethiopia, and south to South Africa), and the Neotropical region.

Remarks: The species differs from other closely related species like *C. chloropyga* in having conspicuous dusting in the dorsal part of its thorax, black marginal bands on abdominal segment III broad, even up to one-half of tergite length, and posterior edge of tergite V of the female entire, without incisions.

Ecology: The species was collected from a heap of rotten apples in the apple orchards in the town of Jubbal, Shimla District, Himachal Pradesh. The region is famous for its apple orchards and generally remains cool throughout the year with summers ranging from 15°C to 30°C. The temperature falls below zero degrees in the winter season.

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Image 1. Head and frontal view of *Chrysomya putoria*Image 3. Head and frontal view of *Chrysomya thanomthini*Image 2. Profile view of *Chrysomya putoria*Image 4. Profile view of *Chrysomya thanomthini*

***Chrysomya thanomthini* Kurahashi & Tumrasvin, 1977  
(Images 3, 4)**

Material examined: #102 PUPDC, 10 ex., 26.vi.2018, females, Jubbal, Himachal Pradesh, India, 31.109°N, 77.662°E, 2,000m, coll. M. Bharti.

Distribution: India (new record), Nepal, Myanmar, Thailand, Malaysia (peninsular and Borneo), and southern China (Yunnan).

Remarks: *Chrysomya thanomthini* could be differentiated from closely related species like *C. megacephala* (Fabricius) and *C. pinguis* (Walker) on the

basis of its purple colour and absence of presutular intra-alar bristles. The post-humeral bristle does not occur in the male but is weakly developed in females.

Ecology: The species was collected from the forests near the town of Jubbal, Shimla District, Himachal Pradesh.

Key to the Indian species of the genus *Chrysomya* Robineau-Desvoidy, 1830

- 1 Anterior spiracle white/yellow ..... 2  
 - Anterior spiracle black to dark brown ..... 5
- 2 Only one katepisternal setae developed (0+1), all hairs on the surface of tergite V black ..... *C. nigripes* Aubertin  
 - Two katepisternal setae developed (1+1), at least some hairs on the surface of tergite V white ..... 3
- 3 Dorsal part of thorax with conspicuous dusting; black transverse marginal abdominal bands on abdominal segment III broad, even up to one-half of tergite length, posterior edge of tergite V of the female entire, without incision .....  
 ..... *C. putoria* (Wiedemann)  
 - Dorsal part of thorax shiny, with little dusting, black transverse marginal abdominal segments III and IV very narrow, up to about a quarter on segment III and usually not more than about 1/6<sup>th</sup> in segment IV, posterior edge of tergite V of female with incision...4
- 4 Third antennal segment wholly dark, blackish brown; proepimeral seta absent ..... *C. albiceps* Wiedmann  
 - Third antennal segment pale brown-reddish on the inner surface; proepimeral seta present ..... *C. rufifacies* (Macquart)
- 5 Femora swollen in male and female, but more noticeably so in male, eyes dichoptic in both the sexes; outer-verticals (*ov*) well developed in male, female tergite V with median incision, facial ridge well-developed, high ..... *C. villeneuvei* Patton  
 - Femora normal ..... 6
- 6 Eyes dichoptic in both sexes, facets small and uniform, outer verticals well developed in male; female tergite V with median cleft/incision ..... *C. phaonis* (Seguy)  
 - Eyes holoptic in the male, anterior facets enlarged; dichoptic in the female; outer verticals absent in male; female tergite V without median incision ..... 7
- 7 Both upper and lower calypter entirely fuscous black, parafacialia and genae fuscous ..... 8  
 - At least base of upper calypter white ..... 9
- 8 Post humeral bristle usually developed, medium-sized dark blue or green species, body length less than 11mm .....  
 ..... *C. pinguis* (Wiedmann)  
 - Post humeral bristle absent, sometimes weakly developed in the female, large dark purple flies, body length more than 11mm .....  
 ..... *C. thanomthini* Kurahashi
- 9 Parafacialia and genae fuscous to black; setulae and hairs on parafacialia and facialia blackish; venter of tergite V with black hairs only; basal part of upper calypter opaque white, bare ventrally except for fringe ..... *C. chani* Kurahashi  
 - Parafacialia and genae entirely orange; setulae and hairs on the parafacialia and facialia yellowish; venter of tergite V intermixed with yellow hairs; opaque white basal part of upper calypter haired ventrally ..... 10
- 10 Upper and lower calypter white; facets of male eye somewhat enlarged above, but not sharply demarcated from the area of smaller facets below; frontal stripe of female parallel-sided ..... *C. bezziana* Villeneuve  
 - Upper and lower calypters largely brown except for the pale base; facets of male eye much enlarged above, sharply demarcated from the area of the smaller facets below; frontal stripe of female broader at the middle of frons, not parallel-sided .....  
 ..... *C. megacephala* (Fabricius)

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