



E-ISSN: 2320-7078

P-ISSN: 2349-6800

[www.entomoljournal.com](http://www.entomoljournal.com)

JEZS 2024; 12(5): 33-35

© 2024 JEZS

Received: 13-08-2024

Accepted: 08-09-2024

**Anmol Singh**Department of Zoology, St.  
Andrew's College, Gorakhpur  
Uttar Pradesh, India**Raina Nivedita Samuel**Department of Zoology, St.  
Andrew's College, Gorakhpur  
Uttar Pradesh, India

## First record of Chequered hover fly *Melanostoma scalare* (Fabricius, 1794) (Diptera: Syrphidae) from India

**Anmol Singh and Raina Nivedita Samuel**

DOI: <https://doi.org/10.22271/j.ento.2024.v12.i5a.9379>

### Abstract

The presence of chequered hover fly *Melanostoma scalare* has been confirmed for the first time in India. The authors discovered *Melanostoma scalare* in adequate numbers from the urban localities of Gorakhpur, a city of Uttar Pradesh, India. The detailed diagnostic characters, measurements, distribution are provided in this article for taxonomic study.

**Keywords:** Syrphidae, Chequered hover fly, First record, India

### Introduction

*Melanostoma scalare* commonly known as grass hover fly or chequered hover fly or ladder backed hover fly is a narrowly constructed hover fly, quite prevalent in northern Palaearctic region occurring in woodland and grassland which may or may not be affected by anthropogenic activities. Genus *Melanostoma* has many species of which *Melanostoma dubium* (Zetterstedt, 1838), *Melanostoma mellinum* (Linnaeus, 1758) and *Melanostoma scalare* (Fabricius, 1794) have been reported from European continent <sup>[1]</sup> while *M. mellinum*, *M. orientale*, and *M. scalare* have been reported from the Republic of Georgia in 2020 <sup>[2]</sup>. Species *M. orientale* is quite common in Pakistan and cold, dry zones of Himachal Pradesh <sup>[3,4,5]</sup> another species *M. univittatum* has been reported from Himachal Pradesh <sup>[6]</sup>.

*Melanostoma scalare* prefers lush green vegetation and is low flier and predator of small insects. It is a phytozetic species as its oviposition is dependent on stimuli from aphid host plants and regarded as facultative predators of aphids. The presence of *Melanostoma scalare* has never been confirmed from India but is quite common in neighbouring countries like Pakistan <sup>[7]</sup> and Nepal <sup>[8]</sup>.

Our survey of three years proved that *Melanostoma scalare* is present in good number in our study area Gorakhpur, Uttar Pradesh. Total five male specimens and four females were collected from different sites and identified using available keys <sup>[9]</sup>. So, the aim of this article is to mark its presence in India from the State of Uttar Pradesh, District Gorakhpur.

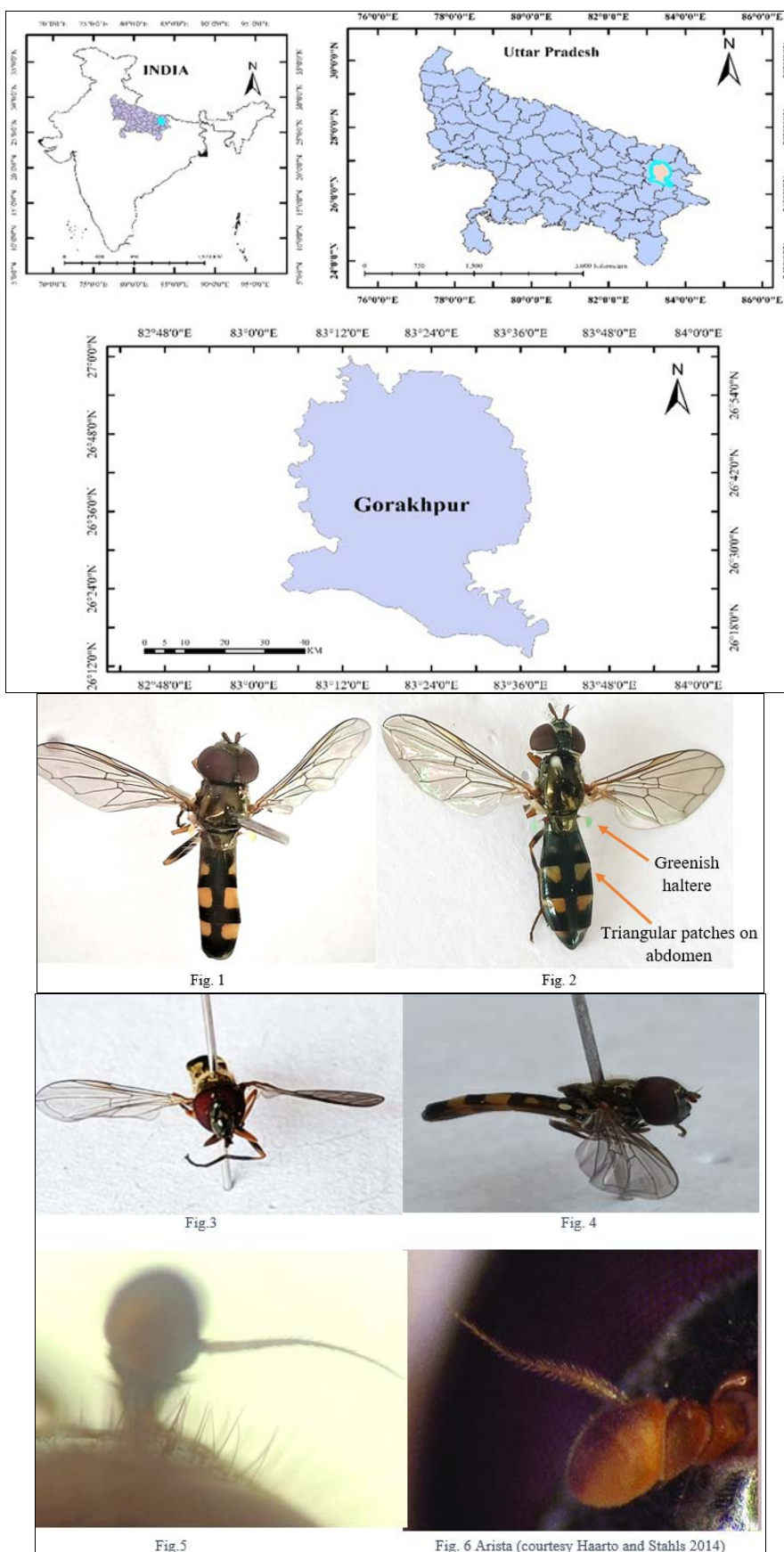
### Materials and Methods

- Study Area:** Gorakhpur is a city in the Indian state of Uttar Pradesh, along the banks of the river Rapti in the Purvanchal region, it lies between latitude 26°46' N and longitude 83°2' E and covers an area of 3,483.8 square kilometer. We selected three different sites in the city viz. St Andrew's College campus, Government Park and Railway colony which were inspected for the presence of hover flies.
- Time, site and collection procedure:** Field survey was performed daily between 8 to 10 hours in the morning and 2 to 3 hours in the afternoon for three consecutive years (2020 - 2023) from October to early April and the hoverflies were collected using hand net. Besides this malaise traps were also installed at strategic points and the contents of the bottles were examined every alternate day to collect the specimens. Later insects were brought to lab for pinning, stretching and preservation. Photographs were taken by Nikon Digital camera and insects were deposited in College Entomology lab. Abundance of this species is seen in late October to early November and late February to March end.

**Corresponding Author:****Anmol Singh**Department of Zoology, St.  
Andrew's College, Gorakhpur  
Uttar Pradesh, India

Systematic Account  
 Order: Diptera  
 Family: Syrphidae

Subfamily: Syrphinae  
 Tribe: Bacchini  
*Melanostoma scalare* Fabricius, 1794



**Fig 1-6:** *Melanostoma scalare* (1) dorsal view of male showing scutellum shining bluish black, (2) dorsal view of female showing triangular abdominal patches, (3) frontal view showing densely dusted face, (4) lateral view showing yellow haltere (slightly darkened base of stem), (5) pilose arista (photographs taken by nikon digital camera), (6) photograph for reference

## Results and Discussion

Genus *Melanostoma* are medium sized hover flies, very similar to *Platycheirus*. They differ *Platycheirus* in their cylindrical tibia and tarsus 1 (male and female) and the absence of bristles on femur 1 (male). The females have triangular spots on tergites 3 and 4. In contrast to the rectangular spots in *Platycheirus* females, which may be orange yellow or grey<sup>[10]</sup>.

### Characters of *Melanostoma scalare* male

Head- colour dark bluish black. Face with dense grey or yellowish grey dusting except shiny facial tubercle. Antenna mainly yellow orangish, arista yellowish brown. Ocellar triangle slightly longer than wide with dark and pale pile and with thin grey dusting. Occiput very narrow and with pale pile. Frontal triangle with dense grey or yellowish grey dusting except area above lunule with thin dusting. Lateral parts of frontal triangle with pale pile. Face with dense grey dusting except shiny facial tubercle. Lateral parts of face with pale pile. Gena about as wide as basoflagellomere and with dense greyish dusting. Antenna mainly yellow, anterodorsal margin of basoflagellomere distinctly brown, about 1.5 times as long as wide. Arista yellowish brown and about twice as long as length of basoflagellomere. Arista short pubescent with pile about as long as width of base of arista<sup>[11]</sup>

Thorax- Scutellum shining bluish black with pale erect pile at its dorsum (fig.1), hind margin and ventral whitish pile at edge. Halter yellow with slightly darkened base of stem (fig. 4).

Legs- Coxa black with grey dusting. Trochanter yellowish brown. Femur and tibia yellow and brown in varying extent. Tarsus yellowish brown. Metaleg usually darker than other leg. Leg with all pile pale.

### Characters of *Melanostoma scalare* female

Females are stouter in comparison to males. Arista with pile about as long as width of base of arista. Cell BM basally without microtrichia. Face except facial knob with distinct grey dusting. (The only difference observed in abdomen region which is much thinner than that of males, markings on abdomen varies as male has yellow roundish or diamond shaped on each tergite, while those of female are triangular patches (fig. 2)<sup>[11]</sup>.

*Melanostoma scalare* can be easily told distinguish from the other *Melanostoma* species by its pilose arista, densely dusted face (fig. 3) and long abdomen.

### Measurement

Male: mean body length (5±1.414) mm, wingspan (12.6±0.570) mm, head length (1.1±0.223) mm, head width (1.9±0.111) mm, abdomen width (1.7±0.223) mm

Female: mean body length (7±0) mm, wingspan (12.75±0.946) mm, head length (2.5±0.314) mm, abdomen width (2.12±0.314) mm, head width (2±0.408) mm

### Distribution

India- First record from India

Elsewhere- This species is present in most of Europe, the Near East, North Africa and the eastern parts of the Afrotropical realm south to Zimbabwe and throughout the Himalayan realm to New Guinea, Indomalayan regions<sup>[12]</sup>, Pakistan<sup>[7]</sup>.

## Acknowledgement

We would like to express our gratitude to Principal, St. Andrew's College Gorakhpur for providing infrastructure and also to faculty and supporting staff for their help and encouragement.

## Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

- Speight MCD. External morphology of adult Syrphidae (Diptera). Tijdschrift voor Entomologie. 1987;130:141-175.
- Mengual X. Phylogenetic relationships of the bacchine flower flies (Diptera: Syrphidae) based on molecular characters, with a description of a new species of *Melanostoma* (Schiner, 1860). Contributions to Zoology. 2020;89:210-244.
- Khan MA, Safdar S, Azizullah. Biodiversity of Syrphidae of Pakistan. Biologia. 1997;43(1):19-25.
- Mitra B, Mukherjee M, Banerjee D. A check-list of hover flies (Diptera: Syrphidae) of Eastern Himalayas. Records of the Zoological Survey of India, Occasional Paper. 2008;284:15.
- Sengupta J, Naskar A, Maity A, Homechaudhari S, Banerjee D. A taxonomic account of hover flies (Insecta: Diptera: Syrphidae) with four new records from cold dry zones of Himachal Pradesh, India. International Journal of Advanced Life Science Research. 2016;1(4):13-30. DOI: 10.31632/ijalsr.2018v01i01.003.
- Sengupta J, Naskar A, Maity A, Hazra S, Banerjee D. New distributional records and annotated keys of hover flies (Insecta: Diptera: Syrphidae) from Himachal Pradesh, India. Journal of Advanced Zoology. 2016;37(1):29-52.
- Rana N, Muhammad I, Bakhat T, Khan AS, Fatima K, Javed S. Prevalence pattern and susceptible strains of order Diptera, Lepidoptera, and Coleoptera among Sarson (*Brassica campestris*) fields under different ecological conditions. Journal of Entomology and Zoology Studies. 2018;6(1):33.
- Budhathoki N, Dhakal S, Dyola U. Diversity of hover flies (Diptera: Syrphidae) in Nagarjun, Shivapuri Nagarjun National Park, Nepal. Biodiversitas. 2021;22(12):5382-5388.
- Thompson FC. Family Syrphidae. In: Thompson FC, Pape T, editors. Systema Dipteroorum; c2013 version 1.5 [accessed 2015 Aug 15]. Available from: <http://www.diptera.org>.
- Van Veen MP. Hover flies of Northwest Europe: Identification Keys to the Syrphidae. [Internet]; c2014 .p. 137. Available from: <https://books.google.com>.
- Haarto A, Ståhls G. When mtDNA COI is misleading: congruent signal of ITS2 molecular marker and morphology for North European *Melanostoma* Schiner, 1860 (Diptera, Syrphidae). ZooKeys. 2014;431:93-134. DOI: 10.3897/zookeys.431.7207.
- Sahib S, Driarach O, Belqat B. New data on the hoverflies of Morocco (Diptera, Syrphidae) with faunistic and bibliographical inventories. ZooKeys. 2020;971:59-103. DOI: 10.3897/zookeys.971.49416.