

New Distributional Records of Black Scavenger Flies (Diptera: Sepsidae) from District Skardu, Gilgit-Baltistan

Muhammad Asghar Hassan¹, Imran Bodlah^{2*}, Khalid Mahmood³ and Ansa Tamkeen⁴

^{1,2} Department of Entomology, Faculty of Crop and Food Sciences, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan.

^{3,4} Department of Entomology, Faculty of Agriculture, The University of Poonch, Rawalakot, Azad Jammu and Kashmir.

Received:
December 11, 2016

Accepted:
March 20, 2017

Published:
June 20, 2017

*Corresponding author email:
imranbodlah@gmail.com

Abstract

Four species (2 genera) of family Sepsidae (Diptera) are first time reported from various localities of district Skardu (Gilgit-Baltistan). Among these, *Sepsis barbata* Becker, 1907, *Sepsis punctum* (Fabricius 1974), *Sepsis thoracica* (Robineau-Desvoidy, 1830) and *Decachaetophora aeneipes* de Meijere, 1913 are first time reported from district Skardu, while *Sepsis thoracica* (Robineau-Desvoidy, 1830) is new record for Gilgit-Baltistan. Micrographs for identified species, their diagnostic characters, local distribution and remarks are provided.

Keywords: Distribution, black scavenger flies, Sepsidae, Skardu, Gilgit-Baltistan.

Introduction

Flies belonging to family Sepsidae are also known as black scavenger flies or ensign flies. Black scavenger flies are commonly distributed in all zoogeographical regions of the world. Ozero (2005) published a checklist of species under family Sepsidae reporting 312 species under 32 genera. Taxonomically, black scavenger flies can easily be identified due to their relatively smaller size (2-12 mm). Most of the species are ant mimic, having the constriction between thorax and abdomen. Round or sub-spherical head, the absence or divergent post-vertical seta and usually reduced palpi, the posterior thoracic spiracle with one or more bristles and wings with or without black spots (Ozero, 2005). Economically the larvae are decomposers of organic matter, serve as a vector of many pathogens and are also used in forensic entomology. Additionally it also become a topic of interest due to their mating behavior, e.g., courtship involving leg displays, female receptivity as related to ovarian status, precopulatory guarding, and copulation posture in understanding male foreleg morphology (Pont and Meier, 2002; Benecke, 2001).

Black scavenger flies have been reported from the various regions of the world by different workers e.g. (Iwasa, 1982a; Iwasa and Tewari, 1994a) from India, (Khaghaninia et al., 2014) from Iran, (Iwasa, 1982b) from Taiwan and Indonesia, (Iwasa and Jayasekera, 1994b) reported their presence in Sri Lanka. Iwasa et al., (1991) reported twelve species under six genera from Bangladesh and reported *Toxopoda mordax* as a new species. Iwasa (1982a) reported 12 species under five genera with a description of a new species from India. Iwasa (1989) reported 25 species under 8 genera from Pakistan including various localities of Gilgit Division. Since 1989, no work has been done on this economically important group in Gilgit-Baltistan. Present study was therefore planned to explore family Sepsidae in district Skardu of Gilgit-Baltistan.

Materials and Methods

During present study adult specimens of Sepsid flies were collected from various localities of district Skardu viz; Skadru city, Hussain Abad, Forest office and from adjacent areas. Specimens were mostly collected from decomposing materials (dung of cows,



garbage, grasses and human excrements) by using aerial net during the year 2016. Collected specimens were killed in killing jar, and preserved in 70% ethanol. Specimens were identified using CZM6 Labomed binocular Microscope and Micrographs were prepared under Nikon SMZ 1500 Binocular Microscope attached with Nikon Digital Sight DS-Fi1 camera. Identification was done by following literature; Iwasa (1980, 1989). Identified specimens were deposited in Biosystematics Laboratory, Department of Entomology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi.

Results and Discussion

Four species of family Sepsidae (Diptera) belonging to two genera are first time reported from various localities of district Skardu of Gilgit-Baltistan. Among these, *Sepsis barbata* Becker, 1907, *Sepsis punctum* (Fabricius 1974), *Sepsis thoracica* (Robineau-Desvoidy, 1830) and *Decachaetophora aeneipes* de Meijere, 1913 are first time reported from district Skardu, while *Sepsis thoracica* (Robineau-Desvoidy, 1830) is reported as new record for Gilgit-Baltistan. Details of the recorded fauna is as under,

Family SEPSIDAE Walker, 1833

Genus Sepsis FALLEN

1. *Sepsis barbata* Becker, 1907 (Fig. 1-2)

Sepsis chopardi Séguy, 1932

Material Examined: Baltistan Division: Skadru City, 15.viii.2016, 5♂; Hussain Abad, 17.viii.2016, 3♂; Forest Office, 20.viii.2016, 8♂. Hassan

Diagnostic Characters: Wings with a dark circular spot at the end of vein R2+3; sternopleuron antero-ventrally shining, postero-dorsally pruinose; antero-basally patch of long hairs in male fore femora.

Distribution: Pakistan: Gilgit-Baltistan: Bagroth, Chilas (Gilgit), Hunza. Khyber Pakhtunkhwa: Dir, Swat (Iwasa, 1989).

World Distribution: Nearctic, Neotropical, Oriental, Palaearctic, Europe and North Africa (Ozerov 2005).

Remarks: Collected from cow dung, garbage, grasses and human excrements.

2. *Sepsis punctum* (Fabricius 1974) (Fig. 5-6)

Sepsis stigma Panzer, 1798; *Sepsis cornuta* Meigen, 1826; *Sepsis ornata* Meigen, 1826; *Sepsis pectoralis* Macquart, 1835; *Sepsis rufocincta* Hoffmeister, 1844;

Sepsis referens Walker, 1849; *Sepsis similis* Macquart, 1851; *Sepsis fulvicoxalis* Bigot, 1886; *Sepsis geniculata* Bigot, 1892; *Sepsis himalayensis* Brunetti, 1910; *Sepsis rufibasis* Brunetti, 1910; *Sepsis major* Brunetti, 1910; *Sepsis obscuripes* Brunetti, 1910; *Sepsis hecate* Melander et Spuler, 1917; *Sepsis zernyi* Duda, 1926a; *Sepsis quadrisetosa* Duda, 1926a; *Sepsis icaria* Séguy, 1932; *Sepsis meridionalis* Séguy, 1932] Material Examined : Baltistan Division: Skadru City, 16.viii.2016, 3♂, 17.viii.2016, 2♂, 20.viii.2016, 1♂; Hussain Abad, 17.viii.2016, 2♂; Forest Office, 20.viii.2016, 1♂. Hassan

Diagnostic Characters: Wings with a dark circular spot at the end of vein R2+3; sternopleuron completely pruinose; fore femur in male with ventral tubercle; dorsocentral setae one pair if two pair then posterior one small.

Distribution: Pakistan: Gilgit-Baltistan: Bagroth, Gulmit (Gilgit), Hunza. Khyber Pakhtunkhwa: Passu. Baluchistan: Quetta (Iwasa, 1989).

World Distribution: This species are widely distributed in different geographical regions of the world. Ozerov (2005) reported this species from various regions of the world viz., Oriental, Afrotropical, Palaearctic, Europe and North Africa.

Remarks: Iwasa (1980) remarked that this species was collected from the dung of wild fox and human excrements and the larvae mostly found in the human excrements, cow and fig dung. We found this species from the cow dung, garbage, grasses and human excrements.

3. *Sepsis thoracica* (Robineau-Desvoidy, 1830) (Fig. 7-8)

Sepsis tridens Becker, 1903; *Sepsis propinquus* Adams, 1905; *Sepsis modesta* de Meijere, 1906; *Sepsis consanguinea* Villeneuve, 1920; *Sepsis goetghebuerei* Frey, 1925; *Sepsis quadratipunctata* Brunetti, 1929; *Sepsis longisetosa* Brunetti, 1929; *Sepsis idmais* Séguy, 1932; *Sepsis inermis* Séguy, 1933; *Sepsis kamahoroensis* Vanschuytbroeck, 1963a

Material Examined: Gilgit-Baltistan: Skadru City, 16.viii.2016, 3♂, 17.viii.2016, 4♂, 20.viii.2016, 1♂; Hussain Abad, 17.viii.2016, 2♂; Forest Office, 20.viii.2016, 2♂. Hassan

Diagnostic Characters: Wings with a dark circular spot at the end of vein R2+3; sternopleuron antero-ventrally shining, postero-dorsally pruinose; male fore femora antero-basally without patch of long hairs.

Distribution: Pakistan: Punjab: D. G. Khan, Fort Munro. Khyber Pakhtunkhwa: Dir, Lalazar, Miandam,



Naran, Swat. Baluchistan: Quetta, Ziarat (Iwasa, 1989).

World Distribution: This species has been recorded from the different geographical regions of the world. Iwasa and Temari (1994) recorded this species in the several localities of India. Ozerov (2005) recorded this species from the following regions, Nepal, Sri Lanka, Turkey (Oriental), Afrotropical, Australasian, Europe, Palaearctic and North Africa.

Remarks: Iwasa (1980) remarked that the larvae of this species preferred cow dung while the adults can also be collected from the horse dung. We also collect this species from the cow dung, garbage, grasses and human excrements.

Genus *Decachaetophora* DUDA

This genus has only a single species viz.; *Decachaetophora aeneipes* de Meijere, 1913, widely distributed in different geographical regions of the world. The diagnostic characters of this genus are; humeral bristle absent; outer vertical seta present.

4. *Decachaetophora aeneipes* de Meijere, 1913 (Fig. 3-4)

Diagnostic Characters: Presence of post-vertical seta; humeral bristle absent; fore tibia in male with two grooves.

Material Examined: Baltistan Division: Skardu City, 16.viii.2016, 11♂, 17.viii.2016, 7♂, 20.viii.2016, 13♂; Hussain Abad, 17.viii.2016, 6♂, 22.viii.2016, 5♂; Forest Office, 20.viii.2016, 6♂. Hassan

Diagnostic Characters: Presence of post-vertical seta; humeral bristle absent; fore tibia in male with two grooves.

Distribution: Pakistan: Gilgit-Baltistan: Bagroth, Nalter (Gilgit). Punjab: Nathia Gali, Murree. Khyber Pakhtunkhwa: Besham, Kagan Valley, Miandam, Shangla Pass, Swat (Iwasa, 1989).

World Distribution: This species has been recorded from Oriental, Australasian and Palaearctic region (Ozerov, 2005).

Remarks: Iwasa (1984) remarked that this species is mostly common around the animal rearing places and mountainous area. The larvae are mostly common in the dung of cow, pig and human excrements. We collect this species from the cow dung, garbage, grasses and its population was abundant around human excrements under decaying or near waste water.

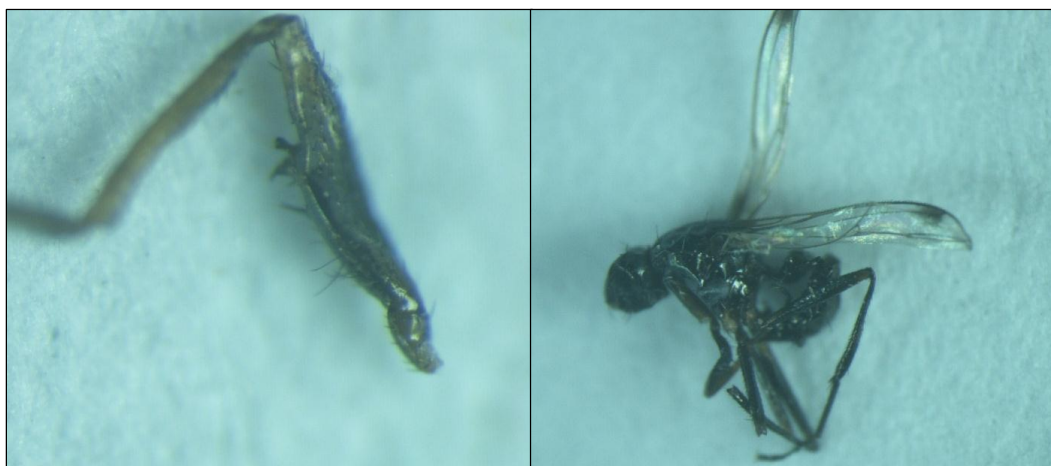


Fig. (1-2): Fore femora (♂)

Lateral view (♂)

Sepsis barbata Becker, 1907



Fig. (3-4) Male (Posterior) and Female (Anterior)
Decachaetophora aeneipes de Meijere, 1913



Fig. (5-6) Lateral view (♂) Closed View of fore femora (♂)
Sepsis punctum (Fabricius 1974)

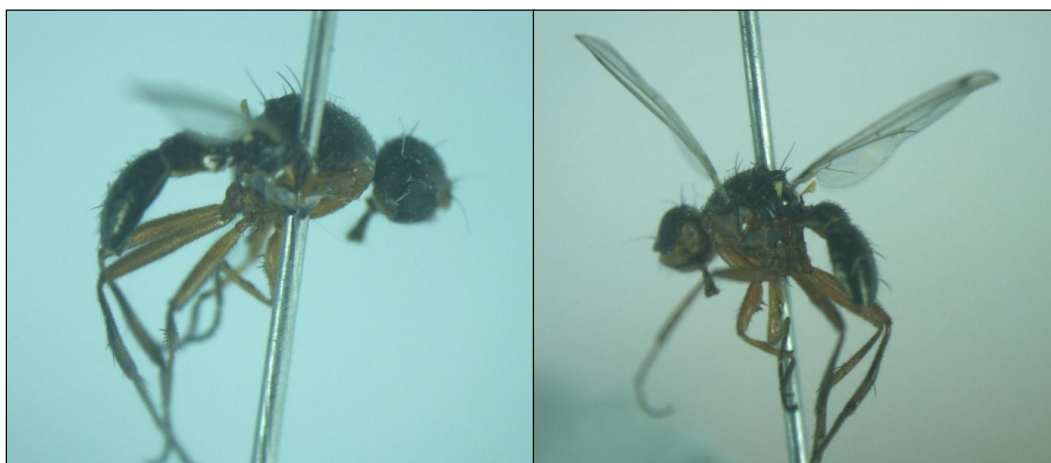


Fig. (7-8) Lateral view (♂)
Sepsis thoracica (Robineau-Desvoidy, 1830)

References

- Benecke M, 2001. Murder most putrid. 410: 752.
- Khaghaninia S, Zarghani E and Gharajedaghi Y, 2014. A recent contribution to the black scavenger flies (Diptera: Sepsidae) in Iran. *Biharean Biologist*. 8 (1): 21-23.
- Iwasa M, 1980. Studies on the Sepsidae from Japan (Diptera). *Kontyu, Tokyo*. 48 (3): 402-413.
- Iwasa M, 1982a. A new species and some records of Sepsidae from India (Diptera). *Kontyu Tokyo*. 0 (4): 604-609.
- Iwasa M, 1982b. A new oriental species of the genus *Sepsis* from Taiwan and Indonesia (Diptera: Sepsidae). *Pac. Insects*. 24 (3-4): 232-234.
- Iwasa M, 1984. Studies on the Sepsidae from Japan (Diptera). on the eleven species of eight genera excluding the Genera *Sepsis* FALLEN and *themira* R.-D., with Description of a New Species. *Kontyu, Tokyo*. 52 (2): 296-308.
- Iwasa M, 1989. Taxonomic study of the Sepsidae (Diptera) from Pakistan. *Jpn. J. Sanit. Zool*. 40: 49-60.
- Iwasa M and Jayasekera N, 1994b. The Sepsidae from Sri Lanka, with description of a new species (Diptera). *Jpn. J. Sanit. Zool*. 45 (1): 57-62.
- Iwasa M and Tewari RR, 1994a. Notes on the Sepsidae (Diptera) from India, with description of a new species. *Jpn. J. Sanit. Zool*. 45: 23-29.
- Iwasa M, Zuska J and Ozerov AL, 1991. The Sepsidae from Bangladesh, with description of a new species (Diptera). *Jpn. J. Sanit. Zool*. 42 (3): 229-234.
- Ozerov AL, 2005. World catalogue of the family Sepsidae (Insecta: Diptera). *Zoologicheskie Issledovania*. 8: 74.
- Pont AC and Meier R, 2002. The Sepsidae (Diptera) of Europe. *Fauna Entomol Scand*. 37: 1-198.

