

## Status Paper

# Genus *Sphaerophoria* St. Farg. et Serv. from Pakistan

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### ABSTRACT

The genus *Sphaerophoria* St. Farg. et Serv. has been recorded for the first time from Pakistan. Three species of this genus viz., *S. philanthus* Meigen, *S. scripta* L. and *S. indiana* Bigot were collected and identified from various localities of Pakistan.

**Key Words:** Sphaerophoria; Pakistan

### INTRODUCTION

The syrphid flies have great importance due to their behaviour towards mankind. One of the favourite habits of these insects is to visit flowers and play an important role in pollination. The members of genus *Sphaerophoria* are predaceous on aphids, coccids and other soft bodied insects and thus can play an important role as bio-control agents for the suppression of pest insects on various crops. The earliest record of the syrphid fly is by Fabricius (1787) from South India. Subsequent additions to the South Indian fauna were made by Bigot (1883) and Brunetti (1908, 1915). The genus *Sphaerophoria* from subcontinent has been studied by Brunetti (1923), Patel (1969), Vockeroth (1969), Joseph and Sharma (1976), Kapoor and Kohli (1985), Datta and Chakraborti (1985, 1986 a,b); while Okuno (1967) determined 21 species of this genus from Japan.

This paper reports occurrence of three species i.e. *S. philanthus* Meigen, *S. scripta* L. and *S. indiana* Bigot of genus *Sphaerophoria* from Pakistan. Deviating characters of these species if any, from the published description by Brunetti (1923) and Vockeroth (1969), measurement (Maximum length "L" and width "W") and their collection data are given in this paper.

#### Genus *Sphaerophoria* St. Farg. et Serv.

1825. *Sphaerophoria* St. Fargeau et Serville, Encycl. Meth., 10: 513.

1840. *Melithreptus* Loew, Progr. Posen, 8: 577.

**Genotype:** *Musca scripta* L., 1844.

**Head:** Broader than thorax; eyes bare; antennae short, with arista short and bare.

**Thorax:** Distinctly broadest behind the middle, blackish, with side margins and greater part of pleura and scutellum yellow.

**Legs:** Simple, pubescent.

**Wings:** Anterior cross-vein before middle of discal cell, 3<sup>rd</sup> vein almost straight; squamae moderate sized.

**Abdomen:** Relatively narrower than thorax, black, with yellow bands or spots.

#### *Sphaerophoria philanthus* Meigen

1822. *Sphaerophoria philanthus* Meigen, Syst. Besch. europ. Zweill. Insekt., 3:304.

**Head:** Eyes orange brown to dark brown; vertex black with black hairs; ocelli reddish-brown, joined to the vertex with a narrow black median strip; antennae orange brown, with arista dull brown to greyish-brown; occiput pale grey, with greyish pubescence and long pale hairs on its margin.

**Thorax:** Dorsum dull black, with grey pubescence, which is yellow at side margins forming yellow side lines, hairs long and yellow at wing bases; scutellum brown, its posterior margin yellow, with long yellow and brown intermixed hairs.

**Legs:** Black, apical ends of tibiae and tarsi brown, with ground colour pubescence.

**Wings:** Clear; squamae white, with white fringe of hairs; halteres dull brown.

**Abdomen:** Black, hind margins of segments 3-4 yellowish-brown, with yellow pubescence, whole abdomen covered with black pubescence.

#### Measurements (mm): 10♂ 6♀

	MALE			FEMALE		
	Range	Mean	S. D.	Range	Mean	S. D.
H.L.	1.47-1.53	1.50	0.04	1.46-1.52	1.49	0.04
T.L.	2.18-2.29	2.23	0.07	2.17-2.25	2.21	0.05
A.L.	4.70-4.76	4.73	0.04	4.69-4.74	4.70	0.04
Ant.L.	1.02-1.07	1.04	0.03	1.00-1.05	1.02	0.03
Ar.L.	1.57-1.62	1.59	0.04	1.56-1.61	1.51	0.04
C.W.	1.47-1.82	1.64	0.24	1.49-1.82	1.65	0.23
C.L.	1.18-1.24	1.21	0.04	1.18-1.23	1.20	0.04
S.L.	0.59-0.65	0.62	0.04	0.59-0.63	0.61	0.03
S.W.	1.35-1.47	1.41	0.08	1.34-1.40	1.10	0.08
W.L.	6.43-6.57	6.50	0.09	6.42-6.56	6.49	0.09
W.W.	2.14-2.29	2.21	0.01	2.14-2.26	2.20	0.08

**Material examined:** Quetta 7♂ 2♀, 7-III-98; Ziarat 3♂ 1♀, 10-III-98; Panjgur 2♀, 18-III-98; Sibi 1♀, 13-IX-98.

**Habitat:** The specimens were collected from wheat (*Triticum aestivum*) crop and grass under the forest plantation.

#### *Sphaerophoria scripta* Linnaeus

1758. *Sphaerophoria scripta* Linnaeus, Syst. Nat. ed., 10: 594.

1968. *Sphaerophoria brunettii* Joseph, *Orient Ins.*, 1: 243.

**Head:** Eyes yellowish-brown, with upper half slightly darkened; vertex black, with black hair posteriorly; ocelli orange; frons pale yellowish, with a median black stripe starting from vertex to mouth; antennae orange brown, with arista dull brown; occiput pale greyish with white fringe of hairs at margin.

**Thorax:** Dull black, with median yellowish continuous grey stripe, pleura and scutellum yellow, whole thorax covered with pale yellowish pubescence.

**Legs:** Yellow, with yellow pubescence.

**Wings:** Shorter than abdomen, clear, slightly pale on anterior margin; squamae pale, with white fringe of hairs; halteres yellowish-brown.

#### Measurements (mm): 5♂ 6♀

	MALE			FEMALE		
	Range	Mean	S. D.	Range	Mean	S. D.
H.L.	1.47-1.53	1.50	0.04	1.46-1.52	1.49	0.04
T.L.	2.18-2.29	2.23	0.07	2.17-2.25	2.21	0.05
A.L.	4.70-4.76	4.73	0.04	4.69-4.74	4.70	0.04
Ant.L.	1.02-1.07	1.04	0.03	1.00-1.05	1.02	0.03
Ar.L.	1.57-1.62	1.59	0.04	1.56-1.61	1.51	0.04
C.W.	1.47-1.82	1.64	0.24	1.49-1.82	1.65	0.23
C.L.	1.18-1.24	1.21	0.04	1.18-1.23	1.20	0.04
S.L.	0.59-0.65	0.62	0.04	0.59-0.63	0.61	0.03
S.W.	1.35-1.47	1.41	0.08	1.34-1.40	1.10	0.08
W.L.	6.43-6.57	6.50	0.09	6.42-6.56	6.49	0.09
W.W.	2.14-2.29	2.21	0.01	2.14-2.26	2.20	0.08

**Abdomen:** Yellow, segments 1-2 black, 3 and 4 with dark brown, median, transverse bands, whole abdomen bears yellow pubescence, its venter blackish-brown, with dark brown hairs.

**Material examined:** Hangu (Peshawar) 1♂, 4-IV-98; Darra Adam Khel 1E, 1-III-98; Khaza Khel (Peshawar) 1♂, 6-VI-99; Takht Nasarti (Peshawar) 3♂ 4E, 2-X-98; Chokera (Swat) 1E, 10-IV-98.

**Habitat:** The material was collected from tobacco (*Nicotiana tabacum* L.), ber (*Zizyphus jujuba*) and wild grasses.

#### *Sphaerophoria indiana* Bigot

1884. *Sphaerophoria indiana* Bigot, *Ann. Soc. Ent. Fr.*, 4(6): 99.

1915. *Sphaerophoria nigratarsis* Brunetti, *Rec. Ind. Mus.*, 11:216.

**Head:** Eyes golden brown, with upper half slightly darkened; vertex shining black, with black hairs posteriorly; ocelli yellow orange; frons yellow, with a median broad black stripe joined to vertex; antennae pale brown, with arista yellow; occiput pale white, with whitish fringe of hairs at margins.

**Thorax:** Dorsum dull black to blackish-grey, with two median greyish stripes on anterior part; pleura black, with large yellow spots; scutellum yellow, whole thorax covered with pale yellowish pubescence.

**Legs:** Yellow, with yellow pubescence; tarsi dark brown.

**Wings:** Longer than abdomen, clear, slightly pale towards anterior basal part; squamae pale white, with white fringe of hairs; halteres dull brown.

**Abdomen:** Segments 1-2 black, anterior and posterior parts of 2-3 and 4 black, with a median yellow band of uniform but varying width, last segment yellow, with yellow pubescence, which is black towards lateral and ventral sides.

#### Measurements (mm): 4♂ 3♀

	MALE			FEMALE		
	Range	Mean	S. D.	Range	Mean	S. D.
H.L.	1.35-1.47	1.41	0.08	1.35-1.45	1.40	0.07
T.L.	1.41-1.53	1.47	0.08	1.40-1.50	1.45	0.07
A.L.	2.65-2.71	1.68	0.04	2.61-2.70	2.65	0.06
Ant.L.	0.86-0.88	0.87	0.01	0.86-0.87	0.86	0.01
Ar.L.	0.50-0.55	0.53	0.03	0.50-0.54	0.52	0.03
C.W.	1.53-1.59	1.56	0.04	1.53-1.54	1.53	0.01
C.L.	0.88-0.94	0.91	0.04	0.88-0.96	0.92	0.05
S.L.	0.29-0.35	0.32	0.04	0.29-0.34	0.31	0.04
S.W.	0.88-0.94	0.91	0.04	0.88-0.94	0.91	0.04
W.L.	4.86-5.41	5.00	0.19	4.86-5.13	5.00	0.19
W.W.	2.14-2.29	2.21	0.10	2.13-2.27	2.20	0.09

**Material examined:** Takht Nasarti (Peshawar) 1E, 2-X-98; Bahrain (Swat) 1♂, 8-VI-99; Kohat 3♂ 1E, 3-III-98; Darra Adam Khel 1E, 1-III-98.

**Habitat:** The species was collected from Ber (*Zizyphus jujuba*), rose (*Rosa indica* L.), sorghum and grasses.

#### REFERENCES

- Bigot, J.M.F., 1883. Dipteres nouveaux ou peu connus. *Annl. Soc. Ent. Fr.*, 3: 535-60.
- Brunetti, E., 1908. Notes on Oriental Syrphidae with description of new species. *Rec. Indian Mus.*, 2: 49-96.
- Brunetti, E., 1915. Notes on Oriental Syrphidae with description of new species. *Rec. Indian Mus.*, 11: 201-56.
- Brunetti, E., 1923. *The Fauna of British-India Including Ceylon and Burma Diptera*. Taylor and Francis, London, 3: 424.
- Datta, M. and M. Chakarborti, 1985. Insecta: Diptera in fauna of Namdapha: Arunachal Pradesh. *Rec. Zool. Surv. India*, 82: 231-52.
- Datta, M. and M. Chakarborti, 1986a. New records of Syrphidae from Darjeeling (West Bengal) and Sikkim, India, with description of *Melisscaeva darjeelingensis* sp. nov. (Diptera). *Opusc. Zool. Flumin.*, 6: 1-19.
- Datta, M. and M. Chakarborti, 1986b. On collection of flower flies (Diptera: Syrphidae) from South India. *Rec. Zool. Surv. India*, 83: 53-67.
- Fabricius, J.C., 1787. *Mantissa insectorum* Copenhagen species. *Nuper Detectar.*, 2: 382.
- Joseph, A.N.T. and H.S. Sharma, 1976. New records of Syrphidae (Diptera) from Sikkim, India. *Newsl. Zool. Surv. India*, 2: 252-4.
- Kapoor, V.C. and V.K. Kohli, 1985. Zoogeography of Indian Syrphidae (Diptera). *J. Ent. Res.*, 9: 223-34.
- Okuno, T., 1967. Population studies of aphidophagous syrphids in the cotton fields in Negasaki. *Negasaki Univ. Sci. Bull.*, 13: 11-22.
- Patel, J.R., 1969. Some syrphids of Gujarat and their hymenopterous parasites. *Indian J. Ent.*, 31: 86-90.
- Vockeroth, J.R., 1969. A revision of the genera of the Syrphini (Diptera: Syrphidae). *Mem. Ent. Soc., Canada*, 62: 1-176.

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