



Re-description and first record of *Saltella setigera* Brunetti, 1909 (Diptera: Sepsidae) from Azad Kashmir: An Oriental Asian species

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ABSTRACT. The Oriental Asian species, *Saltella setigera* (Diptera: Sepsidae), that previously recorded based on a single male specimen from Shakargarh, Punjab province of Pakistan, is revised. During our recent collection from the Northern parts of Pakistan, both male and female specimens have been collected from Islamabad Capital Territory and Azad Kashmir, shows the wide distribution of this rarely known species and may expect to identify from other areas adjoining to these collection sites in future. The distributional notes, key characters, re-description, and detail photographs of both sexes are provided.

Key words: Sepsidae, new records, Azad Kashmir, Pakistan

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Introduction

The members of the genus *Saltella* Robineau-Desvoidy, 1830 (Diptera: Sepsidae) are morphologically closely related to *Australosepsis* Malloch, 1925. In the genus *Saltella*, scutellum is longer than width, with strong basal and apical scutellar setae and the wing with first and second basal cell united. Currently, this genus includes five species viz., *Saltella nigripes* Robineau-Desvoidy, 1830 from the Palaearctic Asia and Europe, *S. orientalis* (Hendel, 1934) from Palaearctic Asia, *S. sphondyliae* (Schrank, 1803) from the Holarctic, Palaearctic Asia and Europe, *S. bezzii* Duda, 1926 from Ethiopian region and *S. setigera* Brunetti, 1909 from Oriental Asia (Ozerov, 2005). Recently, we examined the specimens collected during 2012–2018, and recent collection during 2019 from Punjab, Khyber Pakhtunkhawa, Azad Kashmir and Gilgit-Baltistan. As a result, the Sepsidae fauna of Pakistan currently comprises of 28 species in eight genera (Hassan et al., in press). In the present paper, the author records *Saltella setigera* Brunetti for the first time from Kashmir and provides the world distributional map of this rarely known species and habitat photographs.

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Material and methods

The adult specimens were collected via sweeping net over the cow dung in late August 2019 from Kashmir (Bagh) and Islamabad Capital Territory (Shahdara), Pakistan (Fig. 1A-B). The samples were identified by using Hassan et al. (2017). Adult morphological terminologies and genitalic terminologies follow by Pont & Meier (2002). The identified specimens are deposited at the National Insect Museum (NIM), Islamabad, Pakistan and in the personal collection of first author for future studies. The photographs of the adult habitus were captured with Nikon D800 digital camera with Nikon MICRO NIKKOR 105 mm lens and photo shopped for clarity of diagnostic characters with Helicon focus (version 6.7.1, method B & C), and Adobe Photoshop CS 6.0.



Figure 1. Localities where *Saltella setigera* Brunetti, 1909 were collected.

Results and Discussion

Taxonomy

Family Sepsidae

Genus *Saltella* Robineau-Desvoidy, 1830

Saltella Robineau-Desvoidy, 1830: 746. Type species: *Saltella nigripes* Robineau-Desvoidy, 1830.

Brachygaster Meigen, 1826: 244. Type species: *Brachygaster analis* Meigen, 1826.

Pandora Haliday, 1833: 169. Type species: *Piophila scutellaris* Fallén, 1820.

Anisophysa Macquart, 1835: 543. Type species: *Piophila scutellaris* Fallén, 1820.

Pseudopandora Rapp, 1946: 500. Type species: *Trupanea sphondyliae* Schrank, 1803.

Diagnosis: Wing with fused basal radial and medial wing-cells (Fig. 3C); scutellum longer than width with strong basal and apical scutellar setae (Fig. 2A) (Iwasa et al., 1991; Hassan et al., 2017).

Saltella setigera Brunetti, 1909

Saltella setigera Brunetti, 1909: 368. Type locality: India (Kerala).

Saltella metatarsalis Brunetti, 1910: 369. Type locality: India (Kerala).

Material Examined: Pakistan: Azad Kashmir terr., Poonch div., Bagh dist., Bagh city, 11.viii.2019, 4♂♂, 2♀♀, Islamabad Terr., Shahdara, 27.viii.2019, 2♂♂, 2♀♀, leg. M.A. Hassan (NIM).

Diagnosis: This species is similar to *Saltella orientalis* (Hendel), but easily distinguishable by the following characters: in *Saltella setigera* tarsi dark, first tarsomere yellowish, second tarsal segments of mid- and hind legs in male brownish to dark, and katepisternum without pruinose, while in *S. orientalis*, second tarsal segments of mid- and hind legs brownish, and with pruinose katepisternum in upper posterior corner (Iwasa et al., 1991; Hassan et al., 2017).

Re-description: Body length: male 5.2–5.5 mm, female 4.2–4.5 mm; wing length: male 3.5–3.6 mm, female 3.0–3.3 mm.

Head with one orbital setae, one frontal setae, one inner vertical setae, one outer vertical setae, one post orbital setae; vibrissae and subvibrissal setae stout in male, finer in female. Thorax with one postpronotal setae, two notopleural setae, one supraalar setae, one postalar setae, two dorsocentral setae, one subscutellar setae and one apical scutellar setae. Legs, fore femur with four medial and one apical distinct anteroventral spines, and six small feebly curved spines at apical 1/3rd posteroventral spines, four anterodorsal spines (Figs. 3A–B).

Coloration: Male: (Figs. 2A–B). Head brownish yellow; parafacial, facial carina and gena yellow; face yellow with silvery reflection; ocellar triangle dark; occiput yellow. Antenna yellow; arista black, basal 1/4th yellow. Thorax with broad median black stripe, lateral margins and base of scutum reddish-yellow; pleurites and scutellum wholly reddish-yellow. Legs, coxae, trochanter, femur and tibia reddish-yellow, except hind tibia slightly brownish at distal half; first tarsomere yellowish-white, remaining tarsomere dark, sometimes second tarsomere of mid-leg brownish. Wings clear; calypters and fringe-hairs creamy; knob of halteres brownish. Abdomen reddish-yellow, subshining; posterior half of

syntergite 1+2 with brownish mark, not reaching at hind margins; tergite three and four, sometimes tergite five brownish. Genitalia (Figs. 3D-E); epandrium well developed, yellow, covered with black hairs, upper part with distinct five black spines, four black subapical spines on anterolateral side, apical part pointed with a little dentation.

Female: (Figs. 2C-D). Head brownish; parafacial, facial carina and gena brownish; face brownish-yellow with silvery reflection; ocellar triangle dark; occiput brownish-yellow. Antenna yellow; dorsum of flagellomeres partly darkened; arista black, proximal 1/4th yellow. Thorax with broad median black stripe, slightly narrow at notopleural and postpronotal areas; lateral margins of scutum reddish-yellow; pleurites brownish-yellow, except katepisternum and meron brownish; scutellum wholly orange. Legs, coxae yellow in fore and middle leg, brownish in hind leg; trochanter brownish-yellow; femur brownish, except basal 1/3rd of foreleg, 1/2nd of midleg and 1/3rd of hindleg brownish-yellow; tibia dark; first tarsomere yellowish-white, remaining tarsomere dark. Wings clear, calypters and fringe-hairs creamy. Halteres brownish, knob slightly darker. Abdomen wholly black, sub-shining.

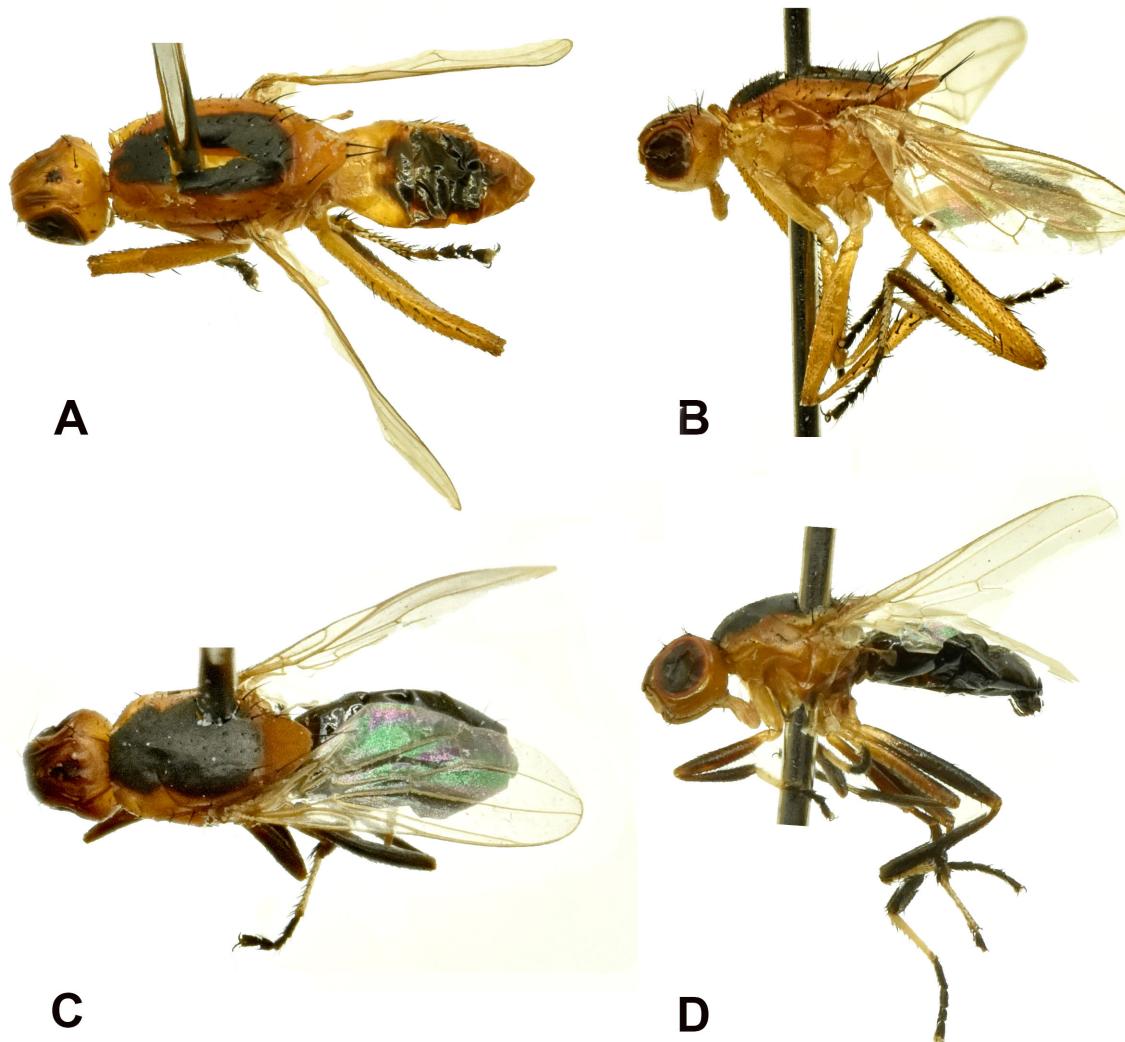


Figure 2. *Saltella setigera* Brunetti, 1909. **A.** Male, dorsal view; **B.** Male, lateral view; **C.** Female, dorsal view; **D.** Female, lateral view.

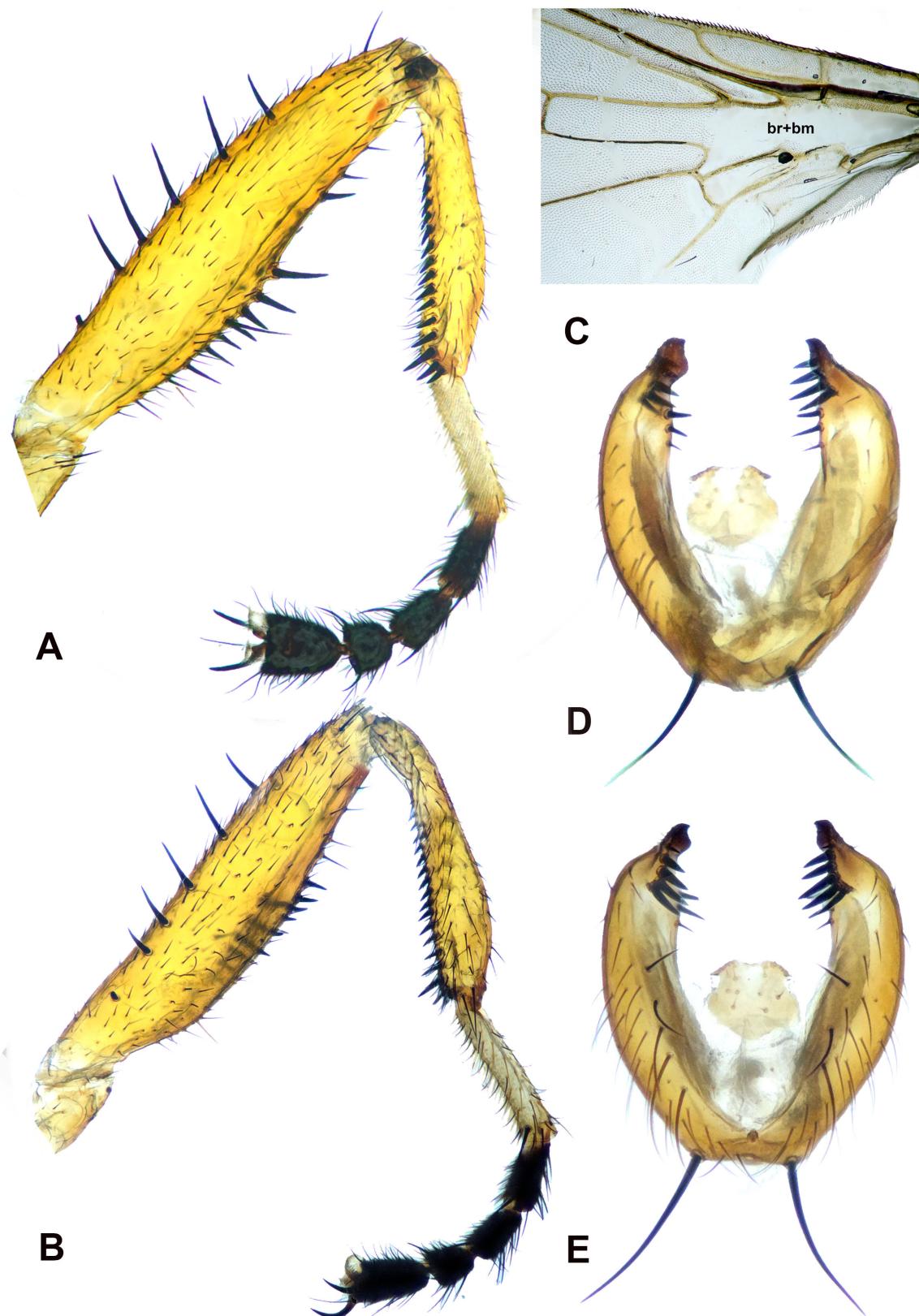


Figure 3. *Saltella setigera* Brunetti, 1909. Male. **A.** Fore femur, posterior view; **B.** Same, anterior view; **C.** Base of wing; **D.** Male genitalia, ventral view; **E.** Male genitalia, dorsal view.

Distribution: Pakistan: Punjab prov., Gujranwala div., Narowal dist., Shakargarh (Hassan et al., 2017); Bangladesh: Chittagon (Iwasa et al., 1991); Nepal: Taplejung (Iwasa, 1984); India: West Bengal, Kolkata and Maldah (Iwasa 1982; Sanyal et al., 2012), Kerala, Tinpahar (Brunetti, 1909), Madhya Pradesh and Uttar Pradesh (Ozerov, 2005), Gujarat (Lahiri & Mitra, 2004), Thar desert (Mitra et al., 2005).

Remarks: *Saltella setigera* Brunetti, is an Oriental Asian species, known from Bangladesh, India, Nepal and Pakistan (Fig. 4), and *Saltella orientalis* (Hendel), is a Palaearctic Asian, from China, Japan, South Korea and Russia.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

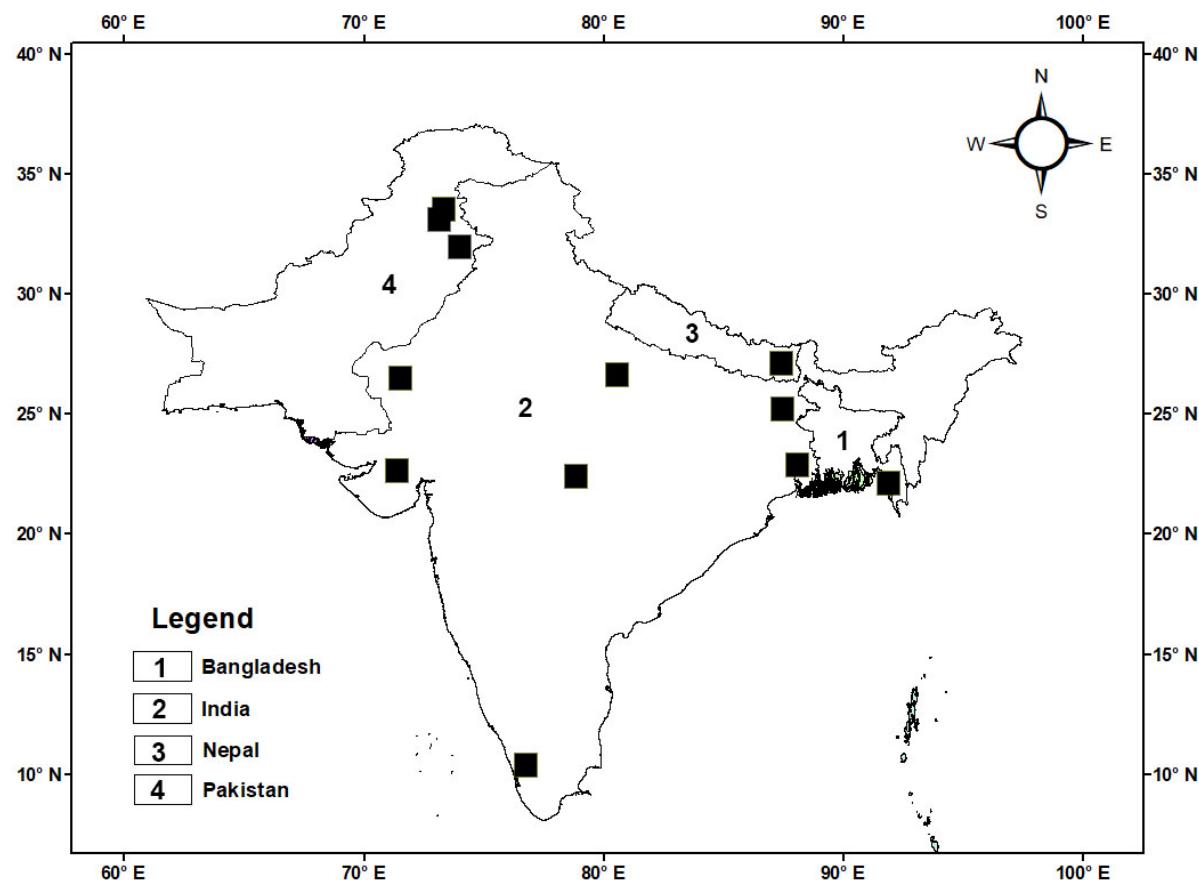


Figure 4. Map showing the known distributions of *Saltella setigera* Brunetti, 1909.

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توصیف مجدد و اولین گزارش از (Diptera: Sepsidae) *Saltella setigera* Brunetti, 1909 کشمیر آزاد: گونه اورینتال آسیایی

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چکیده: گونه اورینتال آسیایی، (Diptera: Sepsidae) *Saltella setigera* که قبلاً براساس یک نمونه نر از منطقه شکرگره استان پنجاب پاکستان گزارش شده بود مورد بازبینی قرار گرفت. در طی نمونه برداری اخیر از قسمت‌های شمالی پاکستان، نمونه‌هایی از نر و ماده از ناحیه اسلام‌آباد و کشمیر آزاد جمع‌آوری شد که پراکنش گسترده‌ای از این گونه به ندرت شناخته شده را نشان می‌دهد و انتظار می‌رود در آینده از نواحی مجاور مناطق کنونی جمع‌آوری شود. یادداشت‌های پراکنش، ویژگی‌های کلیدی، توصیف مجدد و عکس‌هایی از هر دو جنس نر و ماده ارائه شده است.

واژگان کلیدی: Sepsidae، گزارش‌های جدید، کشمیر آزاد، پاکستان