

A new species of the genus *Paraleucophenga* from the Kumaon region, India

(Insecta, Diptera, Drosophilidae)

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Abstract

A new species of the genus *Paraleucophenga*, *Paraleucophenga todai* n. sp., is described from the Kumaon region, India. The male holotype is deposited in the Department of Zoology collection, Kumaon University, Nainital, India.

Key words: *Paraleucophenga*, new species, Diptera, Drosophilidae, Kumaon, India.

Introduction

From the literature it seems that the Drosophilidae are fairly widely distributed throughout the subcontinent of India (GUPTA 1981, 1985). However, many of the family's genera appear to be poorly represented in India. The genus *Paraleucophenga* comprises a total of 7 species: *P. emeiensis* (SIDORENKO 1998) from Southwest China, *P. invicta* (WALKER 1857) from Japan, Korea, Taiwan, Southwest China, Thailand, Borneo (Sarawak), Sumatra, and Java, *P. javana* (OKADA 1988) from Java, *P. neojavanai* (SINGH & NEGI 1992) from India, *P. semiplumata* (DUDA 1939) from Nigeria, Cameroon, Zaire, Uganda, Congo, Zimbabwe, and Mozambique, *P. shan-yinensis* (CHEN & TODA 1994) from central China, and *P. shimai* (OKADA 1988) from Thailand. It is represented so far only by one Indian species. Since SINGH & NEGI (1992) no further species of this genus has been added to the Indian Drosophilidae fauna. This paper deals with the description of one more new species of this genus from the Kumaon region, India.

Materials and methods

The Kumaon region, a hilly area, is located at an elevation of just below 2000 m altitude at the northeast periphery of the state of Uttaranchal. This region includes six border districts of the state: Nainital, Almora, Pithoragarh, Bageshwar, Champawat and Udham Singh Nagar. The present collection was made near Kailakhan in Nainital district, which is located about 2 km away from the city of Nainital and is characterized by *Quercus*, *Pinus*, and *Cedrus* trees with wild fungi and a productive herb layer, a humus layer of about 5–10 cm. The pH of the soil is neutral, the temperature ranges from 15–23 °C, annual rainfall is about 600 mm and relative humidity ranges from 80 to 90 %.

The flies were collected at several collecting stations. Different methods were employed to collect Drosophilidae, like (i) sweeping through undergrowth or above debris on the forest floor, (ii) sweeping over rotting native fruits and artificially yeasted fruit baits, and (iii) from fungi growing on decaying logs. Fig. 1 shows the collecting locality.

Wing-vein indices are derived using the formulae given by STURTEVANT (1942) and BOCK (1976).

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Systematic section

Genus *Paraleucophenga* HENDEL 1914

Paraleucophenga: HENDEL (1914: 14); BÄCHLI (1971: 128), LIN & WHEELER (1972: 254), OKADA (1988: 620).

Type species: *Leucophenga invicta* WALKER 1857.

Diagnosis: Scutellum usually with exceptional setae; lower branches on arista fine; carina undeveloped; 3rd costal section without warts, R_{4+5} and M parallel; thoracic pleura with 3 stout sternopleurals (OKADA 1988). Abdomen generally silvery white at middle and sublaterally greyish brown.

Paraleucophenga todai n. sp.

(Figs. 2 A–D)

Holotype: ♂ (Accession No. NTL-67) Kailakhan, Nainital District, Uttarakhand, India, 18. VII. 1999, FARTYAL & SINGH leg.— In Department of Zoology collection, Kumaon University, Nainital.

Paratypes: 3 ♂♂ (Accession No. NTL-68), in the „*Drosophila* collection“, Cytogenetics Lab., Department of Zoology, Kumaon University, Nainital, and Senckenberg-Museum (SMF D3712); all same data as holotype.

Derivatio nominis: This species is named in honour of Prof. M. J. TODA, Hokkaido University, Sapporo, Japan, who has been giving the author general guidance and en-

couragement in the studies on Indian drosophilids for a long time.

Diagnosis: First and second longitudinal veins along with anterior and posterior crossveins fuscous, ♂ abdominal tergites with narrow black apical bands, 6th abdominal tergite completely black and slightly projected in the middle.

Description: Head (♂): Antenna yellowish grey. Arista with about 9–10 long dorsal and 5–6 short ventral branches in addition to small terminal fork. Palpus dark blackish brown, with a long apical and a few shorter ventral setae. Face and clypeus light brown. Frons mat blackish brown, white parallel sided, slightly narrower than median length anteriorly. Ocellar triangle greyish black. Periorbit mat yellow. Carina undeveloped, weakly convexed, cheek yellowish white, very narrow. Anterior reclinate orbital slightly longer than proclinate, three times nearer to proclinate than to posterior reclinate, which is about twice as long as proclinate. Orbitals in the ratio of 7: 6: 7. Vibrissa prominent, other orals fine. Gena light brown, greatest width of gena 0.25 times the greatest diameter of eye. Eyes dark red.

Thorax (♂): Scutum and scutellum dark brown, silvery shining, humeral callus paler. Acrostichal hairs in about 9 irregular rows. Scutellum dark brown with a

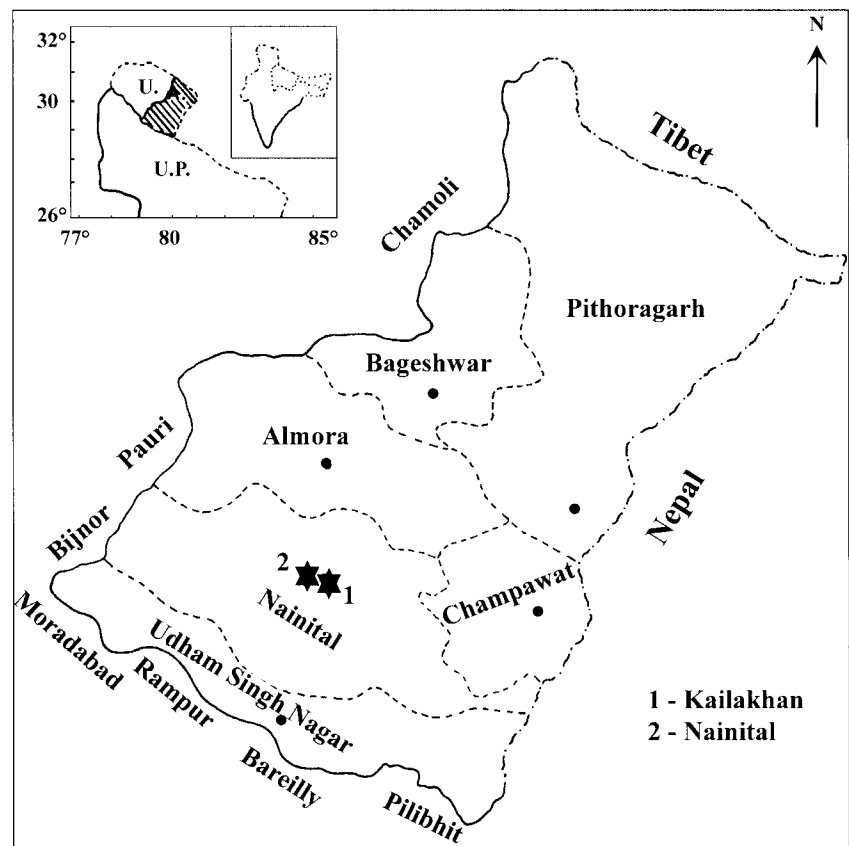


Fig. 1. Map of the Kumaon region showing collecting localities.

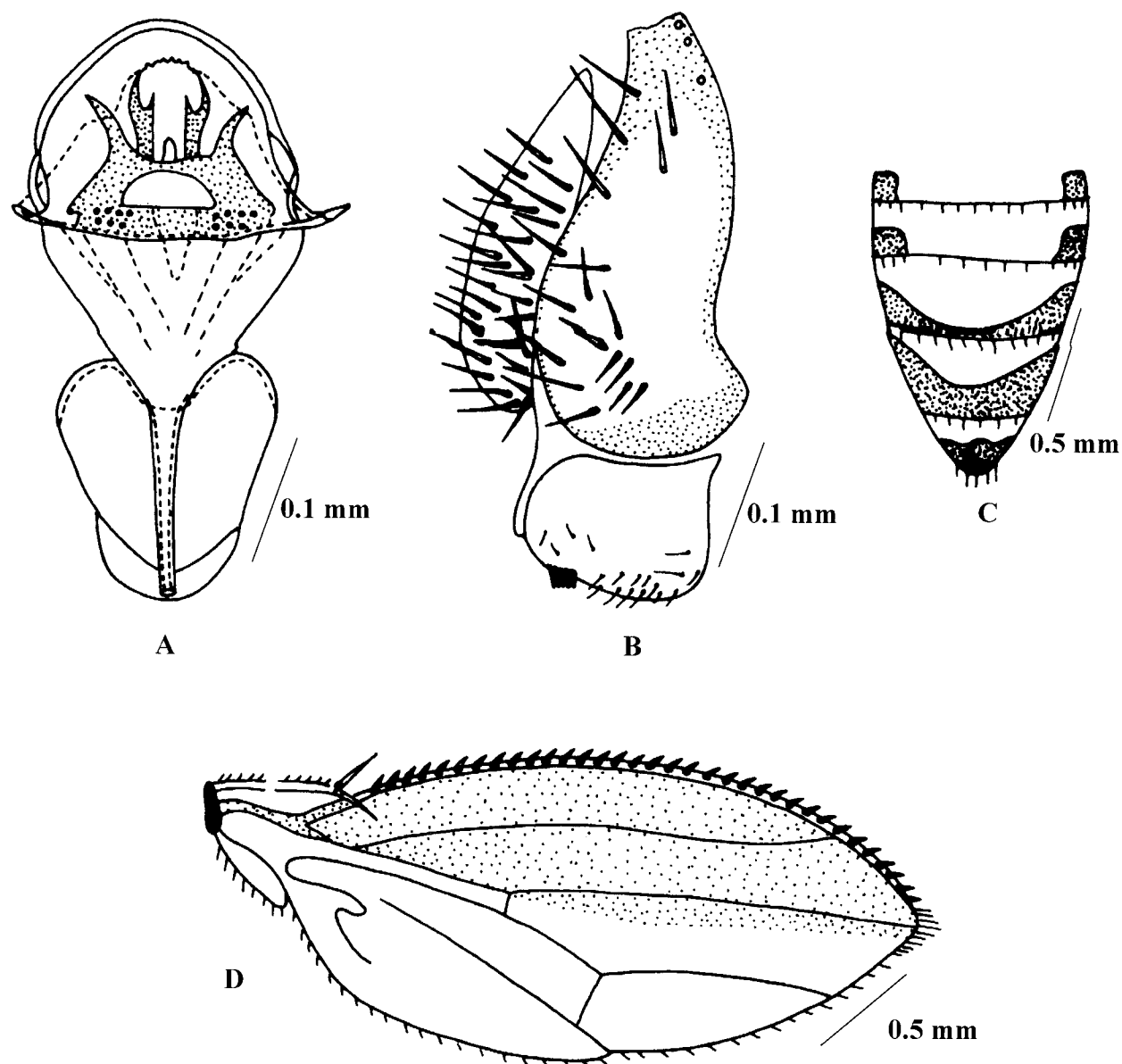


Fig. 2. A–D: *Paraleucophenga todai* n. sp. A: phallic organs. B: peripheral phallic organs. C: abdomen ♂. D: wing.

few long setae beside scutellars. Thoracic pleura light brown, yellowish pruinose. Humeral 1 and long. Basal scutellars convergent, apical crossing each other. Anterior dorsocentral ca 0.56 length of posterior; length distance of dorsocentrals ca 0.40 cross distance. Sterno-index 0.75; median sternopleural slightly shorter than anteriors.

Wings (♂): Wings fuscous along 1st and 2nd longitudinal veins. Anterior and posterior cross veins clouded. C_1 setulae two, unequal; C_3 fringe 0.38. Approximate indices: C-index 5.6; 4 V-index 4.43; 4 C-index 0.47; 5 X-index 0.14. Halter stem pale yellow and knob light brown (Fig. 2 D).

Legs (♂): Legs pale yellow. Preapicals and apicals on all tibiae. Fore and mid metatarsus as long as rest tarsal segments together; hind metatarsus slightly shorter than rest together.

Abdomen (♂): Abdominal tergites silvery white with narrow apical bands. 1st–3rd abdominal tergites with lateral black bands; 4th abdominal tergite with broad black band; 5th abdominal tergite with broad, medially projected black band and 6th abdominal tergite completely black (Fig. 2 C).

Average length of male body: 5.20 mm ($n = 3$).

Peripheral phallic organs: Epandrium yellowish, narrow above and broad below with about 9 large and 13–14 small setae. Surstylus dark brown and quadrate with about 5–6 small black prenisetae subventrally and about 18–19 small setae. Cercus large covering entire length of epandrium, with about 28–29 large setae (Fig. 2 B).

Phallic organs: Aedeagus yellow, short, club shaped and apically serrated. Paramere large, anteriorly pointed, gently curved outward with a few sensilla at the

base. Gonopod pointed, bilobed and contiguous to aedeagus. Hypandrium dumb-bell shaped. Hypandrial apodeme narrow and short (Fig. 2 A).

Remarks: This species is very close to *Paraleuco-*

phenga invicta (WALKER 1857) in having similar abdominal colouration pattern and in the structure of periphallallic organs but distinctly differs from it in the structure of phallic organs and other details.

Discussion

The members of the family Drosophilidae are widely distributed throughout the Indian subcontinent, however many of its genera are poorly represented. About 67 species of the family Drosophilidae belonging to different genera have been described and recorded from different parts of Kumaon region, India. The interesting feature regarding the distribution of Drosophilidae in this region is the genus *Paraleucophenga*. Only seven species of this genus have so far been described from different parts of the world, out of which only one species, *Paraleucophenga neojavanai* SINGH & NEGI 1992, has been described from this region. *Paraleucophenga todai* n. sp. is the second

new species of this genus described from Kumaon. Regarding the distribution of this genus in India it seems interesting that the genus is fairly widely distributed in this region and there is further scope of research in this line.

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