

## A new species of genus *Polleniopsis* from India (Diptera: Calliphoridae) with a key to the Indian species

\*Meenakshi Bharti<sup>1</sup> and Yuriy Verves<sup>2</sup>

<sup>1</sup>Department of Zoology and Environmental Sciences, Punjabi University, Patiala, Punjab, 147002, India.

<sup>2</sup>Department of Ecological Monitoring, Institute for Evolutionary Ecology, National Academy of Sciences of Ukraine, Kyiv, Ukraine, Academician Lebedev Str. 37, Kyiv, Ukraine, 03143.

(Email: \*adubharti@gmail.com)

### Abstract

So far the genus, with the present description, includes 43 species from East Asia, Australia and Oceania. Three species were earlier known from India: *Polleniopsis annamensis* Kurahashi, 1972, *P. pilosa* Townsend, 1917 and *P. kashmirensis* Kurahashi and Okadome, 1976 (Bharti, 2015). The present species *Polleniopsis bomdilaensis* Bharti and Verves, sp. n. has been recorded from the state of Arunachal Pradesh, India. Original key to Indian species of genus *Polleniopsis* is also provided (after Bharti, 2015, with corrections).

**Keywords:** *Calliphoridae*, *Polleniopsis*, species composition, geographical distribution, habits, India, new species.

Received: 20 October 2015; Revised: 30 December 2015; Online: 6 January 2016.

### Introduction

Genus *Polleniopsis* Townsend, 1917 belongs to *Onesia*-group of tribe Calliphorini from subfamily Calliphorinae (Kurahashi, 1972). 43 species of this genus are distributed in East Asia, Australia and Oceania (Bharti, 2015). Majority of the species prefer mountainous regions and have been collected up to an altitude of 4650m a. s. l. (*P. stenacra*). The adults of few species (*P. chosenensis*, *P. dandoensis*, *P. hokurikuensis*, *P. horii* and *P. mongolica*) have been reported to frequent flowers in mountains (Kurahashi, 1967; Kano *et al.*, 1968) with ecology of almost all the species unknown.

### Materials and Methods

The fly was collected by an entomological net from an altitude of 2200m a.s.l. from North-east Himalaya. The material was examined under Nikon SMZ 1500 stereozoom microscope. Digital image was captured with the help of an MP evolution digital camera mounted on Nikon SMZ 1500 using Auto-Montage (Syncroscopy, Division of Synoptics, Ltd.) software. The images were processed and cleaned with Adobe Photoshop

CS5.

### Results

#### Description of a new species

*Polleniopsis bomdilaensis* Bharti and Verves, sp. n. (Figures 1-3)

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**Synonym:** “*Polleniopsis undescribed species*”: Bharti, 2015: 65 (in key).

**Head:** Eyes bare, dichoptic, separated at vertex 0.32x, at level of antennal base 0.48x of head width. Frontal vitta parallel-sided, matt-black, with distinct grey-silver dusting around ocellar triangle, about 4x as wide as one of parafrofrontalia just in front of anterior ocellus. Parafrofrontalia broad at the level of antennal base, narrowed toward vertex, dark grey dusted, with numerous short, fine, black setae in anterior half and shining white spot lower of fore *pc ors*. A single regular row of *poc* present; *ori* 7; *ors* 2+1; all *oc* strong and long; *poc* weakly developed, hair-liked; *ovt* and *ivt*

well developed. Parafacialia at level of antennal base 0.28x of head length, black, with distinct silver pruinescence along facial ridge and genal groove, completely covered by numerous short, fine, black setulae. Face distinctly narrowed forwardly to vibrissal angles, black, grey-dusted, with well developed flat and broad facial carina. Facial ridge with numerous short black hairs in lower 2/5; vibrissae well developed. Genae 0.36x of head-height, black, silver-grey dusted, clothed with black hairs. Genal groove blackish brown, bare. Postgenae black, largely clothed with mid-long black hairs and longer yellow hairs on ventral position. Occiput black, covered with black hairs. Pedicel brownish, submetallic, its surface across pedicel bristle black. First flagellomere matt black, about 2x as long as pedicel. Arista widened in basal 1/3, blackish brown basally to yellowish brown in apical part, long plumose. Palpi long and narrow, entirely blackish brown, almost not widened apically.

**Thorax:** Black, dark grey-dusted, covered with black hairs. Dorsum marked with three approximated narrow (median and a pair of submedian) and two lateral broad longitudinal black stripes on prescutum and scutum, each more distinctly visible when viewed from behind. Humeri, notopleura, sternopleura and scutellum concolorous with dorsum, more or less grey-dusted. Prosternum and propleura blackish hairy, the other pleura also with hairs. Supraspiracular convexity pubescent, pleurotergite with black hairs; postalar declivity with tuft of black hairs in the centre; both tympanic and para-squamal tufts consists of several black hairs; thoracic spiracles blackish. *acr* 0+2, one fore absent on the right side; *dc* 2+3; *ia* 0+1; *sa* 0+3; *pa* 2; *h* 2; *ph* 1 (inner only), *prs* 1, *npl* 2, *st (kepst)* 1 + 1; propleurals and prostigmatic bristles well-developed. Scutellum with strong pairs of *ap*, *subap*, *bas* and more short and fine *d*.

**Wings:** Membrane hyaline, slightly brownish tinged basally and along veins; veins fuscous brown; epaulet and basicosta black; subcostal sclerite fuscous brown, brownish pubescent. Node of veins  $R_1$  and  $R_{2+3}$  with a few black setae above and below; section of  $R_{4+5}$  vein from bend to wing edge gently right curved inward and then running straight toward margin. Cell  $r_{4+5}$  open; upper calypter white, slightly grayish, with dark brown fringe, lower

one gray, with white fringe and several pale hairs on upper surface basally. Halteres brownish yellow.

**Legs:** Black. Mid tibia with 2 *ad*, 2 *pd*, 2 *p* and 1 strong and a single very long *av*; hind tibia with 3 *ad*, 1 *pd*, 1 *av* and 3 *pv*, (Anterior legs and left medial leg missing in holotype).

**Abdomen:** Ground colour metallic; dorsal surface clothed with black hairs. 1<sup>st</sup>+2<sup>nd</sup> and 3<sup>rd</sup> tergites dark blue, almost black, with purple reflections, silver-grey dusted in anterior parts, with several fine lateral adjacent marginals; 4<sup>th</sup> and 5<sup>th</sup> ones shining blue, slightly white dusted, with a trace of narrow black median stripe. 4<sup>th</sup> tergite with full row of erected marginal bristles; 5<sup>th</sup> tergite with numerous erect tiny discals and unclear marginals. All sternites black, grey-dusted, clothed with black bristly hairs.

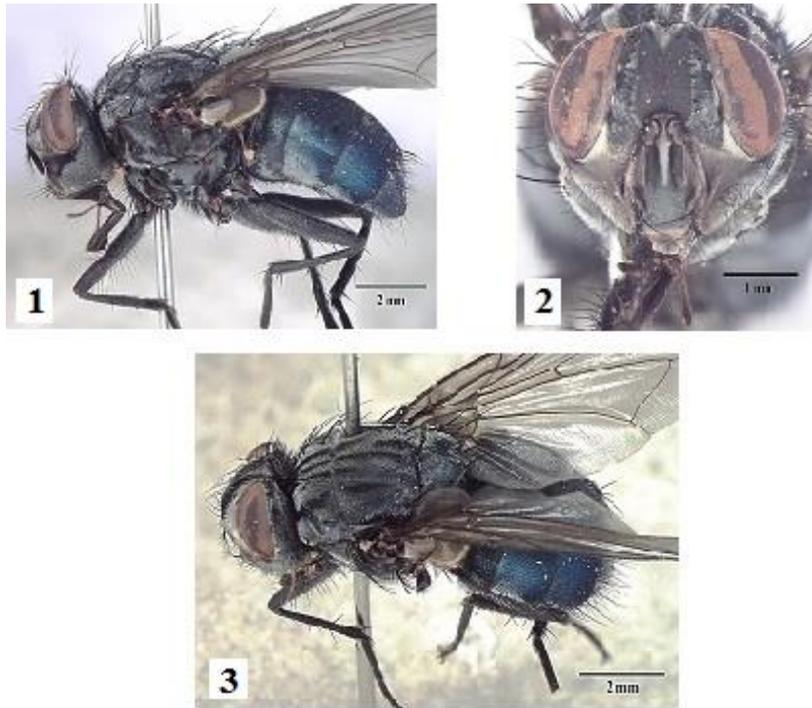
**Measurement:** Holotype (female): Body length: 9.8 mm.

**Etymology:** The specific name is given after the type locality, Bomdila (headquarters of West Kameng District in Arunachal Pradesh State, India).

**Type material:** Holotype (female). India, Arunachal Pradesh, Bomdila, 2200m a. s. l., 25.05.2014. Holotype in Department of Zoology and Environmental Sciences, Punjab University, Patiala, Punjab, India.

**Comparison:** This species is related to *Polleniopsis kashmirensis* Kurahashi and Okadome, 1976 by metallic lustrous abdomen and black legs, but differs by blue colour of abdomen, black basicosta and presence of 2 pairs of postsutural *acr*.

**Ecology:** The West Kameng district is located in the western part of Arunachal Pradesh covering an area of 7422 km<sup>2</sup> and accounts for 8.86% of the total area of the state. The topography of the district is mostly mountainous. A greater part of it falls within the higher mountain zone, consisting of a mass of tangled peaks and valleys. The vegetation generally consists of temperate broad-leaved and conifer forests, scrubs and alpine meadows. The species *Polleniopsis bomdilaensis* was collected from the scrubs in secondary forest area.



Figures: 1-3. *Polleniopsis bomdilaensis*, ♀: 1, Body profile; 2, head frontal view; 3, Body dorso-lateral view.

**Key to the species of *Polleniopsis* from India**

1. Abdomen entirely dark grey to black, silver-gray dusted..... 2
- Abdomen metallic green or blue; legs entirely black ..... 3
2. Scutellum blackish, covered with brownish grey dusting, femora and tibia light brown; basicosta orange; *acr* 0+1. 6-7 mm ..... ***P. pilosa* Townsend**  
India (Bihar, Meghalaya, West Bengal), Thailand (Chiang Mai, Kanchana Buri)
- Scutellum lead grey with grey dusting; legs fuscous to black, almost tibia and knees sometimes brownish; basicosta light brown; *acr* 0+2. 6-7 mm.....  
..... ***P. annamensis* Kurahashi**  
India (Karnataka), China (Hainan), Vietnam (Dalat).
3. Abdomen entirely metallic green; basicosta orange; *acr* 1+3. 6.5-7.5 mm .....  
... ***P. kashmirensis* Kurahashi & Okadome**  
India (Jammu and Kashmir)
- 1<sup>st</sup>+2<sup>nd</sup> and 3<sup>rd</sup> abdominal tergites dark blue, 4<sup>th</sup> and 5<sup>th</sup> ones light blue; basicosta black; *acr* 0+2 (figures 1-3). 10 mm .....  
... ***P. bomdilaensis* Bharti & Verves sp. n.**  
India (Arunachal Pradesh)

**Discussion**

As stated earlier, the genus *Polleniopsis* Townsend, 1917 includes 43 species of which 15 [*P. annamensis* Kurahashi, 1972; *P. bomdilaensis* Bharti and Verves **sp. n.**; *P. choui* Fan and Chen, 1991; *P. dalatensis* Kurahashi, 1972; *P. degenensis* Chen and Fan, 1992; *P. elongata* Kurahashi, 1972; *P. gressitti* Kurahashi, 1972; *P. himalayana* Kurahashi, 1992; *P. kashmirensis* Kurahashi and Okadome, 1976; *P. nepalica* Kurahashi, 1992; *P. nigripalpis* Verves, 1991; *P. pilosa* Townsend, 1917; *P. pulchokii* Kurahashi, 1992; *P. xuei* Feng and Wei, 1998 and *P. zaitzevi* Verves, 1991] belong to the Oriental region, 19 [*P. allapsa* Villeneuve, 1942; *P. chosenensis* Fan, 1965; *P. cuonaensis* Chen and Fan, 1991; *P. dandoensis* Kurahashi, 1964; *P. discosternita* Feng and Ma, 1999; *P. fani* Feng and Ma, 1999; *P. hokurikuensis* Kurahashi, 1964; *P. horii* Kurahashi, 1964; *P. lata* Zhong, Wu and Fan, 1982; *P. latifacialis* Feng and Xue, 2000; *P. lushana* Feng and Ma, 1999; *P. micans* Villeneuve, 1942; *P. milina* Fan and Chen, 1987; *P. pseudophalla* Feng and Ma, 1999; *P. shanghaiensis* Fan and Chen, 1997; *P. stenacra* Chen and Fan, 1988; *P. varilata* Chen and Fan, 1992; *P. viridiventris*

Chen and Fan, 1988 and *P. zhaoi* Xue, 2005] to Eastern Palaearctic, four [*P. fulviventris* Kurahashi, 1972; *P. jamesi* Kurahashi, 1972; *P. patiens* (Walker, 1858) and *P. sarcophagoides* (Walker, 1861)] to Australian/Oceanian region, three species [*P. fukiensis* Kurahashi, 1972; *P. mongolica* Séguy, 1928 and *P. yunnanensis* Chen, Li and Zhang, 1988] are common for South-eastern part of Palaearctic and Oriental regions and two [*P. inconclusa* (Walker, 1861) and *P. toxopei* (Senior-White, 1926)] for Oriental and Australian/Oceanian regions (Fan *et al.*, 1992; Kurahashi, 1964, 1972, 1992; Kurahashi and Chohanadisai, 2001; Kurahashi and Magpayo, 2000; Kurahashi and Thapa, 1994; Xue and Chao, 1998; Verves, 2004, 2005; Yang *et al.*, 2014).

### Acknowledgements

Financial assistance rendered by Department of Science and Technology, Ministry of Science and Technology, New Delhi, vide Project No. SR/WOS-A/LS-275/2012 (G) is gratefully acknowledged. Authors also thank an anonymous reviewer for the valuable suggestions.

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