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New species of genus *Dexia* (Diptera: tachinidae) from western Maharashtra, India

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Abstract

Tachinid flies are important biocontrol agents of various insect pests. Therefore, a new species *Dexia indica* sp. n has been described and reported for the first time from India. Tachinid flies have been collected from western Maharashtra at 15 days interval during the year 2011-2015. According to key of Rayner & Raper^[7] this species runs close to *Dexia vacua* by having, sternopleuron with 2 sternopleural setae, calyptres at outer edge with hairs and tergites dusted. However, it differs from the above species by having 4th and 5th abdominal tergites nearly black, scutellar apical bristles parallel but slightly inwarded at tip, 5th tergite abruptly smaller and narrower than 4th and antennal formula: S L/W = 1.45, P L/W = 1.9, F L/W = 6.18, A = 3.17.

Keywords: *Dexia indica* sp n., description, India

1. Introduction

The family Tachinidae (Diptera: Tachinidae) is one of the leading families of Diptera with 10,000 described species worldwide which are biocontrol agents of various insect pests^[3, 7]. Tachinids are parasitoids of different members of order Lepidoptera, Heteroptera, Coleoptera, Orthoptera, and several others^[8]. The family Tachinidae is widely attempted from different regions of world, but very little studies have been carried out from oriental region including India except the work of O'Hara^[5], Crosskey^[1], Lahiri^[2,3], Sathe *et al.*^[8], etc. Therefore, description of new species of Tachinid fly will add great relevance in quantity of biocontrol agents used in biological control of pests.

The genus *Dexia* was erected by Meigen^[6]. Two species namely, *Dexia rustica* and *D. vacua* have been described from the world^[1, 8].

2. Materials and methods

Tachinid flies have been collected from the different ecosystems of western Maharashtra at 15 days interval during the years 2011-2015. The collected tachinid flies have been preserved by pinning and drying in oven at 60 °C. The pinned insects are kept in the insect boxes. Taxonomical studies of Tachinids have been made on head, thorax and abdomen and their appendages. Measurements were taken in millimeter with the help of ocular meter. The species have been identified with the help of suitable literature^[1, 8].

3. Results

Dexia indica sp. n

Female- (Fig. 1 to 9)

Body 12.48 mm long, 4.15 mm broad, wing expanse 8.18 mm, antenna 0.96 mm long.

3.1. Head (Fig. 3) - Small in size, 1.7mm in length; Yellowish brown with strong facial carina. Vertex wide; Inner vertical bristles reclinate; Outer vertical bristle absent; Ocelli present; Ocellar bristles short, weak, Proclinate; Frontal vitta well developed; Frontal bristles medioclinate; Fronto orbital plate with one additional row medioclinate setae; Reclinate upper orbital bristles absent; Proclinate orbital bristles with two setae; Face concave, dark brown; Lower facial margin less visible in lateral view; Facial carina present; Vibrissa strong, crossed; Facial ridge convex; Parafacial bare; Gena narrow; Genal dilation with well developed; Back of head convex, less hairs pale; Eyes 0.74mm bare, reddish brown; Antenna (Fig. 4) scape 0.13mm very short, silvery yellow, Pedicel 0.21mm; First flagellomere 0.68mm; Arista plumose type, initiated from base of first flagellomere; Mouth Proboscis well Developed; Prementum with short labella; Palpus well developed slightly swollen at apex.

Antennal formula: 1 L/W = 1.45, 2 L/W = 1.9, 3L/W = 6.18, A = 3.17

3.2. Thorax (Fig. 5 & 6)- 4.46mm, humeral callus 2 setae, reclinate; Propleuron bare; Proepimeron with 1 propleural setae & 1 prostigmatic seta; Prosternum bare; Scutum 3.18mm, 4 dark longitudinal incomplete strips; Acrostichal bristles reclinate (Presutural 3 + Postsutural 3); Dorsal central bristles reclinate (Presutural 3 + Postsutural 3); Notopleuron with 2 reclinate setae; Postalar callus with 2 reclinate setae; Scutellum 1.28mm; Basal scutellar bristles single pair; lateral scutellar bristles absent; subapical scutellar bristles one pair, longer and stronger than other bristles; Apical scutellum bristles crossed, short, strong; Subscutellum convex; Katepisternum 2 strong setae (1 reclinate + 1 proclinate); Anepimeron with one bristles at the base of wing; Katepimeron bare; Meron with vertical row of bristles; Postmetacoxal bare; Anatergite bare; Anterior thoracic spiracle narrow and closed by fringes of hairs.

Wing (Fig. 7): 10.96mm, transparent; Lower calypter well developed inner margin less contiguous to lateral margin of scutellum; Second costal section with fine hairs at ventrally; Base of Costa without strong bristles; Costal bristles absent; Fourth costal section longer than 6th costal section; R₁ bare;

Cu A₁ bare; Bend of M abrupt; Wing cell r₄₊₅ open at wing margin, hairs at base are absent; Cross vein R-M present; Cross vein d M-Cu distinctly present; Anal vein not reaching hind margin of wing; Halter reddish yellow, 1.36mm length, 0.49mm width.

Leg (Fig. 8 a, 8b, 8c) – Extremely elongated legs, Fore legs Femora 3.4mm; Tibia 3.58mm, tarsus 4.64mm; Fore and mid femora with rows of spiny bristles; Fore tibia preapical anteriodorsal setae present; Fore tarsus laterally compressed, hard; Mid legs Femora 3.38mm, Tibia 3.52mm, tarsus 4.60mm, Mid tibia with 2 anteriodorsal setae; Hind legs Femora 3.42mm, Tibia 3.60mm, tarsus 4.61mm, Hind tibia with 1 anteriodorsal setae; Hind coxa with 2 small setae.

3.3. Abdomen (Fig. 1)

6.32mm in length, oval shaped; Abdominal tergite 5th as long as 4th tergite; Mid dorsal depression present reaches back to hind margin of that segment; Median discal bristles present, abdominal sternite overlapped by the ventral edges of tergite.

Genitalia (Fig. 9)

Terminalia retracted within abdominal 5th tergite; Tergite 6th less reduced joining segment 7th. Prominent parts of genitalia are piercer, cercus: both parts turn inward and hidden.



Fig.1. *Dexia indica*, dorsal view, Fig.2. Lateral view, Fig.3. Frontal view of head, Fig.4. Antennae Fig.5. dorsal view of thorax, Fig.6. Lateral view of thorax, Fig.7. Fore wing, Fig.8a. Fore leg, 8b. Mid leg, 8c. Hind leg, Fig.9. Genitalia

3.4. Colour

Dark brown: Frontal vita

Yellow: Fore Tibia, Mid Tibia, Hind Tibia, Abdomen

Golden yellow: Face, Parafacial, Antenna

Reddish brown: Eyes, Head, Thorax

3.5. Host: unknown

3.6. Host plant: *Chrysanthemum* sp.

3.7. Holotype: Female, India, Maharashtra, Coll. 23-IX-2012, Barki, A.S. Desai; antenna, wings, legs, tergites on slides, labeled as above.

3.8. Paratype: 8 Females, Sex ratio (M: F) 0:8, June-February (2011-2015).

3.9. Etymology: The species has been reported first time from India hence the species name *indica*
Type material is time being kept in the Department of Zoology and will be deposited in ZSI.

3.10. Distributional record: India, Maharashtra, ♀ 1 Panhala 15-VII- 2013; ♀ 2 Radhanagari 16- VII-2013; ♀ 2 Kolhapur 06- VII-2013; ♀ 1 Amba 13-X-2013; ♀ 2 Gaganbawada 13-X- 2013.

4. Remarks

According to key of Rayner & Raper [8] this species runs close to *Dexia vacua* in the following characters,

1. Sternopleuron with 2 sternopleural setae
2. Calyptrae at outer edge with hairs
3. Tergites dusted However, it differs from the above species by following distinct characters,
 1. 4th and 5th abdominal tergites almost black
 2. Scutellar apical bristles parallel but slightly inwarded at tip
 3. Last 5th tergite abruptly smaller, narrower than 4th tergite
 4. Costal spine reduced
 5. Antennal formula: 1 L/W = 1.45, 2L/W = 1.9, 3L/W = 6.18, A = 3.17

5. Acknowledgement

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