

TWO NEW SPECIES AND A NEW RECORD OF *DACUS* FABRICIUS (DIPTERA: TEPHRITIDAE) FROM INDIA

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Abstract

Two new species of the genus *Dacus* Fabricius, namely *D. (Mellesis) jacobi* David & Sachin and *D. (Mellesis) viraktamathi* David & Hancock of tribe Dacini are described from India. *Dacus (Mellesis) maculipterus* White is recorded for the first time from India. An updated key to species of genus *Dacus* from India, Bhutan and Sri Lanka is also provided.

Keywords: Zingerone, Meghalaya, Kerala, Himachal Pradesh

Introduction

Dacus Fabricius is primarily an African genus represented by 195 species from Africa (Norrbom et al. 1999; White, 2006; White and Goodger, 2009) and 75 species from the Indo-Australasian region (White, 2006; Drew et al. 1998; Drew and Romig, 2013). Of these, ten species are known from India (Agarwal and Sueyoshi, 2005; David and Ramani, 2011; Drew and Romig, 2013). Of these, records of *D. nummularius* (Bezzi) from Burma and Northeast India are misidentifications that result from the synonymy of *Mellesis apicalis* Shiraki in the revisionary work of Drew et al. (1998) and true *D. nummularius* does not occur in India. David & Ramani's (2011) record of the same from Karnataka is a misidentification of *D. discophorus* Hering. Five subgenera are recorded from India, namely *Calantra* Walker, *Didacus* Collart, *Leptoxyda* Macquart, *Mellesis* Bezzi and *Neodacus* Perkins. Species of this genus are characterized by the reduced chaetotaxy of head and thorax, presence of fused abdominal tergites, patterned praepitium in glans of phallus of males and aculeus tip with three pairs of preapical setae (David and Ramani, 2019). In this paper two new species of *Dacus* belonging to subgenus *Mellesis* are described from India and a third newly recorded, along with an updated key to species from India. Six additional species recorded from Bhutan and Sri Lanka are included in the key since at least the Bhutanese species are likely to occur also in India.

Material and methods

Specimens are deposited in the following museum:

ICAR -NBAIR—National Bureau of Agricultural Insect Resources, Bangalore, India.

Images of the specimens were acquired using a Leica DFC 420 camera mounted on a Leica M205A stereo-zoom microscope; the images were stacked and combined into a single image using Combine ZP (Hadley, 2011). Measurements of male and female genitalia were taken using Leica Automontage Software, LAS 3.4. Terminology adopted here follows White *et al.* (1999).

- vitta on tergites III–V [Bhutan]..... *D. (M.) feijeni* White
- Wing cell br fuscous in at least anterior half; abdomen without a narrow medial black vitta..... 12
12. Abdomen with tergite I quadrate; cell br almost entirely fuscous..... *D. (M.) viraktamathi* David & Hancock, sp. n.
- Abdomen petiolate with tergite I distinctly longer than broad; cell br fuscous only on anterior half..... 13
13. Postpronotal lobe yellow; scutum and abdomen without fuscous markings; anatergite almost entirely yellow [Andaman Is] ..
..... *D. (M.) insulosus* Drew & Hancock
- Postpronotal lobe dark fulvous or reddish brown; scutum and abdomen with fuscous markings; anatergite yellow at most on ventral quarter..... 14
14. Postpronotal lobe dark fulvous; anatergite dark fulvous with ventral quarter yellow; scutellum with a narrow dark basal band; fore, mid and most of hind femora orange-brown [Sri Lanka]..... *D. (M.) ancoralis* Leblanc & Doorenweerd
- Postpronotal lobe reddish brown; anatergite entirely dark brown; scutellum with a broad dark basal band; all femora fuscous with orange-brown apices..... *D. (M.) jacobi* David & Sachin, sp. n.
15. Wing cell br entirely fuscous; abdominal tergites II and III with large posteromedial orange-brown patches [Bhutan].....
..... *D. (M.) fletcheri* Drew
- Wing cell br fuscous only in anterior half; abdominal tergites II and III without large posteromedial orange-brown patches..16
16. Abdomen petiolate with tergite I distinctly longer than broad and tergites III–IV entirely black [Bhutan].....
..... *D. (M.) siamensis* Drew & Hancock
- Abdomen with tergite I quadrate and tergites III–IV with large posteromedial patches [Bhutan].....
..... *D. (M.) dorji* Drew & Romig
17. Wing with a broad costal band that expands over R-M crossvein, anepisternal stripe broad, reaching postpronotal lobe.....
..... *D. (M.) ramanii* Drew & Hancock
- Wing with broad costal band confluent with vein R₄₊₅, overlapping towards apex but without an extension over R-M crossvein; anepisternal stripe narrow, barely wider than notopleural lobe.....18
18. Abdomen entirely black; anatergite wholly black..... *D. (M.) crabroniformis* (Bezzi)
- Abdominal tergites IV–V with submedial reddish brown patches separated by a medial black vitta; anatergite partly yellow..
..... *D. (M.) maculipterus* White

Taxonomy

New species

Dacus (Mellesis) jacobi David & Sachin, sp. n. (Figures 1–8)

Description: Male

Head: Frons light fuscous with two frontal setae and single orbital seta, ocellar triangle and ocelli black, medial and lateral vertical setae present. Occiput black with a row of thin black postocular setae. Face reddish brown with inverted U-shaped black marking. Gena fulvous with subocular spot and without seta. Scape elongate, fulvous, pedicel and first flagellomere dark brownish; combined length of pedicel and first flagellomere longer than vertical length of face.

Thorax: Scutum reddish brown without medial and lateral postsutural yellow vittae. Yellow markings as follows; notopleuron, base of transverse suture, narrow anepisternal stripe as broad as notopleuron and 0.5 dorsal of katatergite. Anatergite entirely dark brown, subscutellum black. Scutellum yellow with broad reddish brown basal band covering basal quarter. Chaetotaxy: 1 scapular seta, 1 anterior notopleural seta, 1 posterior notopleural seta, 1 postsutural supra-alar seta, 1 anepisternal seta, 1 post-alar seta, 1 intra-alar seta and 1 scutellar seta.

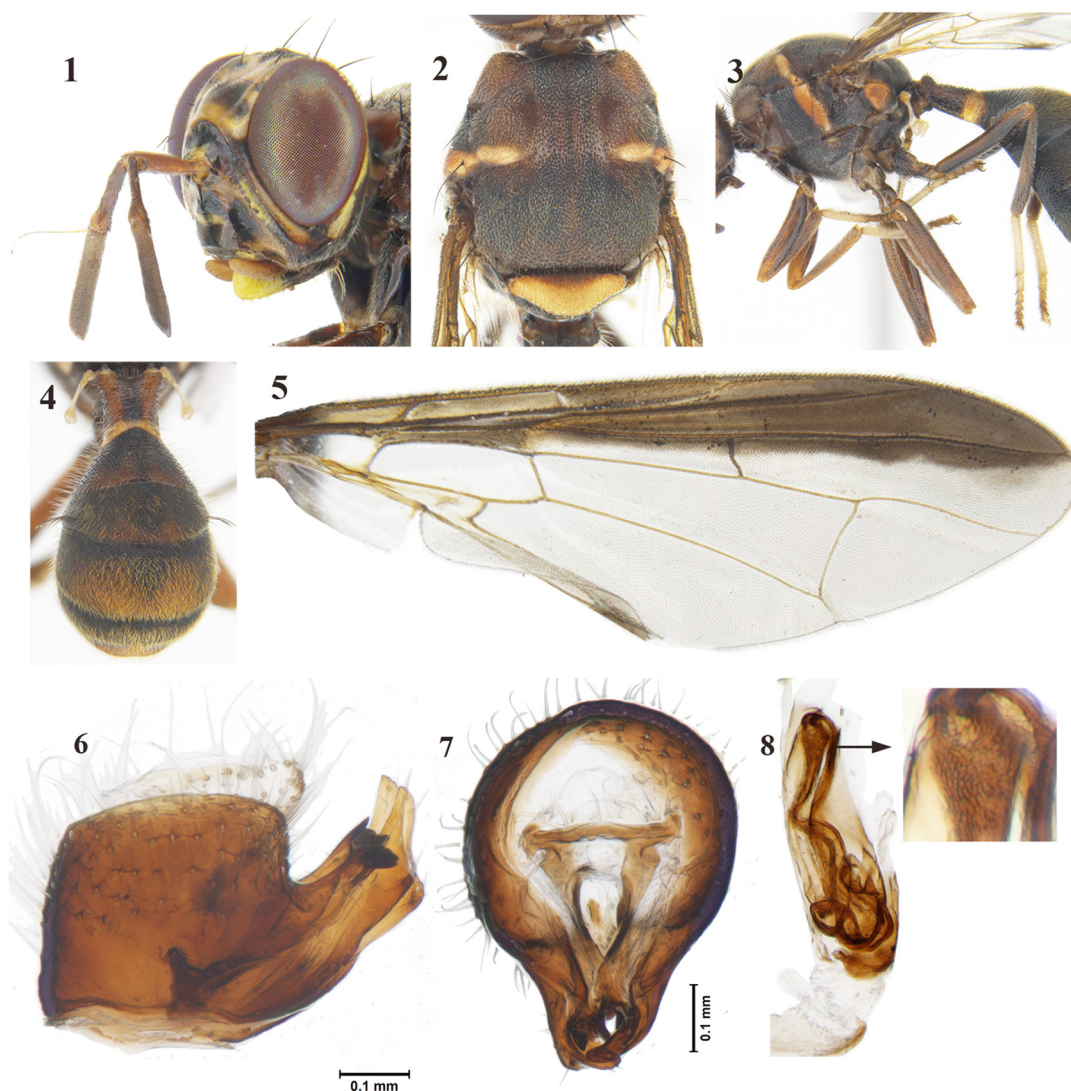
Legs: Coxa, trochanter, femur, tibia dark fuscous; tarsal segments fulvous.

Wing: (5.81–6.20 mm) dimidiate with broad costal band from cell bc to wing apex, overlapping vein R₄₊₅ throughout its entire length but not reaching middle of cell r₄₊₅ apically, anal streak absent.

Abdomen: Elongate and petiolate, tergites reddish brown; tergite I with single fulvous band apically, tergites II and III predominantly black with apical reddish brown areas, tergite III black basally and laterally, but with broad reddish-brown areas medially, tergite IV dark brown or black. Pecten present on tergite III; sternite V with shallow/flat posterior emargination.

Male genitalia: Epandrium strongly sclerotised, longer and broader than length of lateral surstylus; posterior lobe of lateral surstylus elongate, 7–8 times longer than anterior lobe. Proctiger membranous, round and smaller than epandrium. Epandrium and surstyli distinctly bulb-shaped in posterior view; medial surstylus shorter than lateral surstylus, tapering towards apex with a pair of thick prensisetae. Phallus elongate (3.36 mm) with well developed sclerotised glans (0.8 mm); 0.75 of glans sclerotised with patterned praeputium; subapical lobe and basal lobe present.

Attractant: Zingerone



FIGURES 1-8. *Dacus (Mellesis) jacobi* David & Sachin, sp. n. 1, head; 2, scutum (dorsal view); 3, thorax (lateral view) and legs; 4, abdomen; 5, wing; 6, epandrium and surstyli (lateral view); 7, epandrium and surstyli (posterior view); 8, glans of phallus.

Material examined: Holotype, ♂, INDIA: Kerala, Thrissur, KFRI, Peechi, 30.ix.2019, Sachin, K., Paratypes, 2♂♂, India, Kerala, Calicut, Calicut University Campus, 03.x.2019, Sachin, K., 1♂, INDIA: Kerala, Calicut, Janakikadu, 03. x.2019, Sachin, K (NBAIR).

Etymology: This species is named after the late D. Jacob, in memory of the first author's father.

Remarks: *D. jacobi*, sp. n., is similar to *D. vijayasegarani* Drew & Hancock and *D. siamensis* Drew & Hancock in possessing a broad costal band overlapping vein R_{4+5} , petiolate abdomen and face with inverted U-shaped marking joined with broad band above oral margin. It can be differentiated from *D. vijayasegarani* and *D. siamensis* by the paler reddish brown scutum and abdomen and the broad reddish brown basal band covering basal quarter of the scutellum; it further differs from *D. vijayasegarani* by its yellow notopleuron, and from *D. siamensis* by its moderately developed posterior lobe of the lateral surstylus. It differs from the otherwise similar Sri Lankan species *D. ancoralis* Leblanc & Doorenweerd (Leblanc *et al.* 2018) in characters noted in the key.