

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:

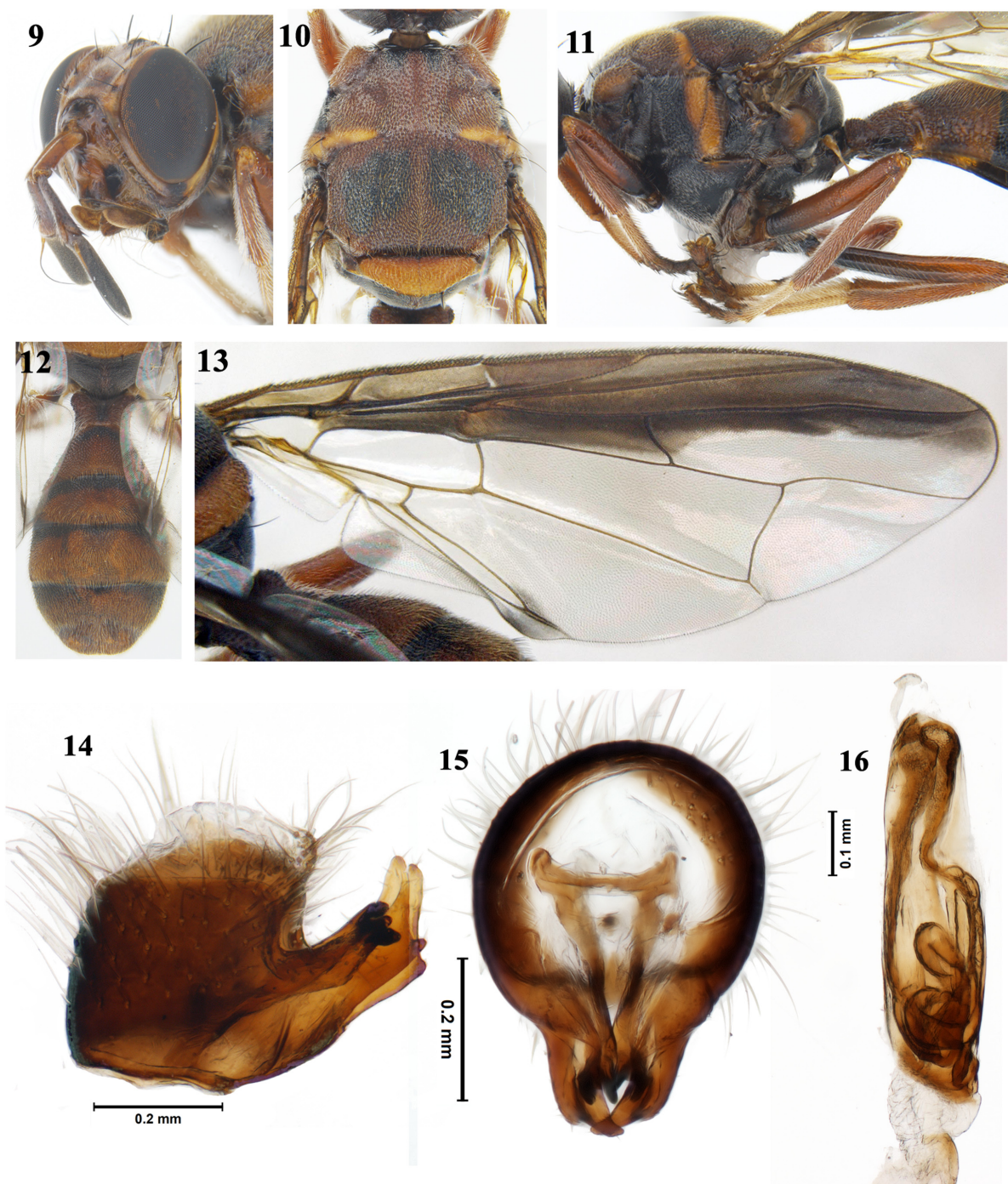
ICAR -NBAIR—National Bureau of Agricultural Insect Resources, Bangalore, India.

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).

Dacus (Mellesis) viraktamathi David & Hancock, sp. n. (Figures 9–16)

Description: Male

Head: Higher than long, frons reddish brown with two frontal setae, single orbital seta, ocellar triangle black devoid of ocellar seta, postocellar seta present, lateral and medial vertical setae present. Gena yellow/fulvous with a black spot and seta; 3 thin postocular setae, all black; occiput black. Face reddish brown with two separate black spots towards lower margin and a medial spot slightly ventral to antennal base. Antennal segments fuscous; scape as long as pedicel, combined length of scape and pedicel longer than length of face.



FIGURES 9-16. Holotype male of *Dacus (Mellesis) viraktamathi* David & Hancock sp.n. 9, head; 10, scutum; 11, thorax (lateral view) and legs; 12, abdomen; 13, wing; 14, epandrium, surstyli and proctiger (lateral view); 15, epandrium and surstyli (posterior view); 16, glans of phallus.

Scutum: Reddish brown, without lateral and medial postsutural vittae; with broad black patches posterior to transverse suture. Yellow markings as follows: along base of transverse suture, postpronotal lobe, notopleuron, narrow anepisternal stripe as broad as notopleuron, dorsal 0.75 of katatergite, and entire scutellum. Pleuron predominantly black except for anepisternal stripe and yellow part of katatergite. Chaetotaxy: 1 scapular seta, 1 anterior notopleural seta, 1 posterior notopleural seta, 1 postsutural supra-alar seta, 1 intra-alar, 1 postalar seta, and 1 (apical) scutellar seta. Subscutellum black with a longitudinal brown band.

Legs: Predominantly fuscous, all femora reddish brown with basal black markings; fore and mid femur with basal 0.2 black; hind femur with basal 2/3 black. Tibia reddish brown, basitarsus of all legs fulvous/ yellow, rest of tarsal segments black.

Wing: Length 7.48 mm, dimidiate, with broad costal band covering cells bc, c, sc, r_1 , r_{2+3} , br, and proximal half of cell r_{4+5} . Anal streak absent.

Abdomen: Reddish brown, club-shaped with tergites fused. Tergite I as long as broad with median stripe, tergite 2 with a crescent-shaped black marking, tergites 3-5 each with basal black band. Pecten present on tergite 3. All sternites black, sternite V with shallow posterior emargination.

Male genitalia: Epandrium dark-brown to black, square-shaped; proctiger much smaller than epandrium; lateral surstylus broad (0.1 mm) with posterior lobe 4-5 times longer than anterior lobe. Medial surstylus shorter than lateral surstylus, with well-developed prenisetae. Phallus elongate (3.00 mm), coiled, with sclerotised glans of phallus (0.63 mm) and patterned acrophallus.

Material examined: Holotype, ♂, INDIA, Himachal Pradesh, Shimla, IARI Regional Station, Totu, 18. viii.2019. Coll. David K. J. collected on *Vitis vinifera* (NBAIR).

Etymology: This species is named after Dr. C. A. Viraktamath, University of Agricultural Sciences, Bangalore, in recognition of his contributions in insect taxonomy.

Remarks: *Dacus viraktamathi* is similar to *D. formosanus* (Tseng & Chu) and *D. trimacula* (Wang) in facial markings, possessing a broad costal band almost confluent with vein M basally, quadrate abdominal tergite I, fuscous anatergite and mostly yellow katatergite. It can be differentiated from the former by the elongate posterior lobe of the lateral surstylus, reddish brown, paler scutum with broad quadrate black patches posterior to the transverse suture, abdomen with tergite III reddish brown with a narrow, black basal band, and the postpronotal lobes concolorous to the reddish brown scutum. It can be differentiated from *D. trimacula* by the absence of medial longitudinal black band on scutum, the costal band reaching the middle of cell r_{4+5} and the reddish brown abdomen with narrow basal bands.

New distribution record

Dacus (Mellesis) maculipterus White (Figures 17–24)

Dacus (Callantra) maculipterus White, in Drew *et al.*, 1998: 607. Holotype male in BBM.

Dacus (Mellesis) maculipterus: Drew and Romig, 2013: 389.

Material examined: 1♂, INDIA, Meghalaya, Umiam, 25.668°N 91.918°E, 10-14. x.2019., Salini, S. (NBAIR).

Diagnosis: This species has been described adequately by Drew *et al.* (1998) except for postabdominal structures. It is a predominantly black species with a largely black face (red-brown centrally), broad costal band confluent with R_{4+5} and expanded apically, fore and mid femora wholly black, hind femur 0.6 black; abdomen with reddish brown areas submedially on tergites IV-V (extending marginally onto tergite III in the present specimen) separated by a black medial vitta. Epandrium heavily sclerotised, black. Lateral surstylus shorter than epandrium; posterior lobe of surstylus 6–7 times longer than anterior lobe. Epandrium and surstyli bulb-shaped in posterior view; medial surstylus shorter than lateral surstylus and with black, finger-like prenisetae. Phallus elongate (2.28 mm) with sclerotised glans (0.57 mm); acrophallus with single patterned tubule, preglans lobe and subapical lobe present.

Remarks: Described from central Thailand, this species is recorded for the first time from India. It has been collected in Zingerone traps.