

# Factsheet *Dacus bivittatus* (Bigot)

**Original name:** *Leptoxys bivittatus* Bigot, 1858: 374.

**Vernacular name:** pumpkin fly, greater pumpkin fly

(updated July 28<sup>th</sup>, 2020)

## Formal redescription (after White, 2006)

Wing length, 6.4-8.5 mm.

Head. Pedicel+first flagellomere not longer than ptilinal suture. Face, antennal furrow with a dark spot. Frons, frontal setae 2, orbital seta 1.

Thorax. Scutum red-brown to almost black; postpronotal lobe yellow to bicoloured; notopleural callus yellow; notopleural xanthine isolated from notopleural callus; lateral and medial postsutural vittae present. Scutellum without any dark patterning (except for basal dark margin, which is sometimes deep). Anepisternum with a narrow stripe from notopleural callus to (or almost to) katepisternum; extended onto katepisternum. Lateroterga with a single xanthine across both anatergite and katatergite, or narrowly separated. Thoracic setae. Anterior notopleural seta present; anterior supra-alar seta usually present (rarely absent).

Wing. Basal cell bc without an almost complete covering of microtrichia; cell c with an almost complete (>90%) covering of microtrichia; cell bm without microtrichia. Narrow subbasal raised section of cell br with extensive covering of microtrichia. Crossvein R-M beyond middle of cell dm. Costal band complete; deep, extending to (or below) vein R<sub>4+5</sub> before wing apex; apically expanded into a spot which reaches vein M and starts before crossvein R-M. Anal streak present (colour extending beyond cell bcu). Cells bc and c coloured (not as deeply as costal band). Without any crossbanding.

Legs. Femora bicoloured (pale basally and red-brown apically).

Abdomen. Red-brown, patterned black; shape and patterning, see image (CD-C). Tergites I-V all fused.

Male. Tergite III with pecten, dense microtrichia adjacent end A<sub>1</sub>+Cu<sub>2</sub>, and hindtibia preapical "pad". Basal costal sections without specialised setae. Female. Aculeus pointed; no torsion; length, 2.5-2.9 mm.

Encyclopedia of Life link: <http://eol.org/pages/727497/overview>

## DNA barcoding

Multiple reference DNA barcodes from the species distribution are available on the Barcode of Life Data Systems (BOLD) at

[http://www.boldsystems.org/index.php/Taxbrowser\\_Taxonpage?taxon=Dacus+bivittatus&searchTax=](http://www.boldsystems.org/index.php/Taxbrowser_Taxonpage?taxon=Dacus+bivittatus&searchTax=)  
(accessed May 2020)

DNA barcoding might be considered as a fairly suitable tool for the molecular identification of *D. bivittatus*, regardless the BINs in which this species is represented, also include a few unidentified / possibly misidentified reference sequences.

## Host plant list

One of the main fruit fly pests found on wild and cultivated Cucurbitaceae. Occasionally also found on Solanaceae crops. Throughout its range it is recorded from the hosts listed in the table below.

PlantFamily	PlantLatinName	PlantCommonNameEnglish
Anacardiaceae	Mangifera indica	mango
Caricaceae	Carica papaya	papaya, pawpaw
Cucurbitaceae	Citrullus lanatus	watermelon
Cucurbitaceae	Coccinia palmata	
Cucurbitaceae	Cucumeropsis mannii	
Cucurbitaceae	Cucumis melo	melon
Cucurbitaceae	Cucumis metuliferus	
Cucurbitaceae	Cucumis sativus	cucumber
Cucurbitaceae	Cucurbita maxima	pumpkin
Cucurbitaceae	Cucurbita moschata	
Cucurbitaceae	Cucurbita pepo	gourd, squash, zucchini
Cucurbitaceae	Cucurbita sp.	pumpkin, squash
Cucurbitaceae	Lagenaria abyssinica	
Cucurbitaceae	Lagenaria siceraria	water-bottle
Cucurbitaceae	Lagenaria sp.	
Cucurbitaceae	Lagenaria sphaerica	
Cucurbitaceae	Luffa acutangula	ridged gourd, sponge gourd
Cucurbitaceae	Momordica balsamina	
Cucurbitaceae	Momordica charantia	bitter melon, bitter gourd
Cucurbitaceae	Mukia maderaspatana	
Cucurbitaceae	Peponium mackenii	
Cucurbitaceae	Peponium vogelii	
Cucurbitaceae	Sechium edule	chayote
Cucurbitaceae	Telfairia pedata	
Myrtaceae	Psidium guajava	guava
Passifloraceae	Passiflora quadrangularis	
Solanaceae	Capsicum frutescens	chilli peper
Solanaceae	Solanum aethiopicum	
Solanaceae	Solanum lycopersicum	tomato
Solanaceae	Solanum melongena	aubergine
Sterculiaceae	Cola natalensis	

Additional information on host records and associated specimens can be found on :  
<http://projects.bebif.be/fruitfly/taxoninfo.html?id=211>

## Impact & management

Management for this species is, as for most fruit fly pests, most efficient using an IPM (Integrated Pest Management) program, including aspects such as orchard sanitation, bait sprays, mass trapping

among others. General reviews on the current IPM components applied in Africa can be found in chapters 13 to 20 of Ekesi et al. (2016).

No SIT (Sterile Insect Technique) application specifically for this species has been developed in Africa.

## Attractants & trapping

Both sexes can be attracted by protein bait products such as liquid protein baits (Torula Yeast), protein bait capsules (Questlure) and three component Biolure.

Male flies can be attracted by cuelure.

General information on trapping, types of traps, lures and required density of trapping stations can be found in IAEA (2013), Shelly et al. (2014), and Manrakhan (2016).

## Distribution

*Dacus bivittatus* is found throughout Sub-Saharan Africa. Absent in drier areas of southern Africa. Present in Madagascar and the Comoro archipelago (De Meyer et al., 2012). Reported from Mahé (Seychelles) but apparently not established. Not established outside Africa.

Distribution map for Africa, based upon specimen records with georeferences, is available at:

<http://projects.bebif.be/fruitfly/taxoninfo.html?id=211>

## REFERENCES

De Meyer M., S. Quilici, A. Franck, A.C. Chadhouliati, M.A. Issimaila, M.A. Youssoufa, A. Barbet, M. Attié & I.M. White. 2012. Frugivorous fruit flies (Diptera, Tephritidae, Dacini) of the Comoro Archipelago. *African Invertebrates* 53: 69-77.

Ekesi, S., S.A. Mohamed & M. De Meyer (Eds). 2016. *Fruit fly research and development in Africa – Towards a sustainable management strategy to improve Horticulture*, Springer Verlag, xx + 778pp.

IAEA. 2013. *Trapping manual for area-wide fruit fly programmes*. IAEA, Vienna, 46pp.

Manrakhan, A. 2016. Detection and monitoring of fruit flies in Africa. In: Ekesi, S., S.A. Mohamed & M. De Meyer (Eds) *Fruit Fly Research and Development in Africa*. Springer Verlag, 253-273.

Shelly, T., N. Epsky, E.B. Jang, J. Reyes-Flores & R. Vargas (Eds). 2014. *Trapping and the detection, control, and regulation of tephritid fruit flies*. Springer Verlag, Dordrecht, xv+638pp.

White, I.M. 2006. *Taxonomy of the Dacina (Diptera: Tephritidae) of Africa and the Middle East*. *African Entomology Memoir* 2: 156pp.

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