

Factsheet *Dacus frontalis* Becker

Original name: *Dacus frontalis* Becker, 1822: 74.

Vernacular name: none

Formal redescription (after White, 2006)

Wing length, 4.2-5.8 mm.

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

Thorax. Scutum predominantly red-brown; postpronotal lobe yellow; notopleural callus yellow; notopleural xanthine wedge shaped (connected to notopleural callus); lateral and medial postsutural vitta absent. 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. Thoracic setae. Anterior notopleural seta present or absent; anterior supra-alar seta absent.

Wing. Basal cells bc and c without an almost complete 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; shallow, not or only slightly extending below vein R₂₊₃ before wing apex; expanded into a small spot at apex. Anal streak present (colour extending beyond cell bcu). Cells bc and c hyaline. Without any crossbanding.

Legs. Fore- and hindfemora pale; midfemur bicoloured (pale basally, red-brown apically).

Abdomen. Predominantly red-brown; shape and patterning, see image. Tergites I-V all fused.

Male. Tergite III with pecten, dense microtrichia adjacent end A₁+Cu₂, and hindtibia preapical "pad". Basal costal sections without specialised setae. Female. Aculeus pointed; no torsion; length, 1.3-1.7mm.

Encyclopedia of Life link: <http://eol.org/pages/727840/overview>

Remark: this species is often misidentified and confused with *D. ciliatus* and *D. vertebratus*. See White (2006) for differentiating characters.

DNA barcoding

A limited number of reference DNA barcodes of *D. frontalis* are available on the Barcode of Life Data Systems (BOLD, March 2017) at:

http://www.boldsystems.org/index.php/Taxbrowser_Taxonpage?taxon=Dacus+frontalis&searchTax=

In BOLD (March 2017), *D. frontalis* only forms monospecific BINs. The molecular identification of this species through DNA barcoding might still be attempted, taking into account that its genetic variability might not be properly represented in the reference libraries of BOLD.

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
Cucurbitaceae	Citrullus lanatus	watermelon
Cucurbitaceae	Coccinia grandis	
Cucurbitaceae	Coccinia trilobata	
Cucurbitaceae	Cucumis figarei	
Cucurbitaceae	Cucumis melo	melon
Cucurbitaceae	Cucumis sativus	cucumber
Cucurbitaceae	Cucurbita moschata	
Cucurbitaceae	Cucurbita pepo	gourd, squash, zucchini
Cucurbitaceae	Cucurbitaceae (unspecified)	
Cucurbitaceae	Lagenaria siceraria	water-bottle
Solanaceae	Solanum incanum	

Additional information on host records and associated specimens can be found on :
<http://projects.bebif.be/fruitfly/taxoninfo.html?id=282>

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) and three component Biolure.

Male flies can be attracted by zingerone (see Manrakhan et al., 2017), also to cue lure (see White, 2006) but in low numbers.

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 frontalis is found throughout Sub-Saharan Africa but shows a dispersed distribution. It is unclear whether this is due to confusion with *Dacus ciliatus* or a true reflection of its range. Also reported from northern Africa, Cape Verde islands and the Arabian Peninsular. Not established on any of the islands of the Western Indian Ocean or outside Africa.

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

<http://projects.bebif.be/fruitfly/taxoninfo.html?id=282>

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.

Manrakhan, A., J-H Daneel, R. Beck, M. Virgilio, K. Meganck & M. De Meyer. 2017. Efficacy of trapping systems for monitoring of Afrotropical fruit flies. *Journal of applied Entomology* doi: 10.1111/jen.12373.

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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