Factsheet *Dacus vertebratus* Bezzi

Original name: *Dacus vertebratus* Bezzi, 1908: 147.

Vernacular name: Jointed pumpkin fly, melon fly

Formal redescription (after White, 2006)

Wing length: 4.8-7.5 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 to bicoloured; 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. Laterotergal xanthine across both anatergite and katatergite, but rarely, largely confined to katatergite. Thoracic setae. Anterior notopleural seta present; 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 R_{2+3} before wing apex; apically expanded into a spot which reaches about mid-depth of cell r_{4+5}. Anal streak present (colour extending beyond cell bcu). Cells bc and c hyaline. Without any crossbanding.
Legs. Femora bicoloured (pale basally and 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 A_1+Cu_2, and hindtibia preapical "pad". Basal costal sections without specialised setae. Female. Aculeus pointed; no torsion; length, 1.7-1.8mm.

Encyclopedia of Life link: http://eol.org/pages/727829/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+vertebratus&searchTax=

In BOLD (March 2017), *D. vertebratus* only forms monospecific BINs. For this reason, DNA barcoding might be considered as a suitable tool for the molecular identification of this species.

Host plant list

One of the main fruit fly pests found on wild and cultivated Curcubitaceae. 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	Cucumis aculeatus	
Cucurbitaceae	Cucumis dipsaceus	teasel gourd
Cucurbitaceae	Cucumis figarei	
Cucurbitaceae	Cucumis melo	melon
Cucurbitaceae	Cucumis sativus	cucumber
Cucurbitaceae	Cucumis sp.	
Cucurbitaceae	Cucurbita moschata	
Cucurbitaceae	Cucurbita pepo	gourd, squash, zucchini
Cucurbitaceae	Cucurbitaceae (unspecified)	
Cucurbitaceae	Momordica charantia	bitter melon, bitter gourd
Cucurbitaceae	Momordica sp.	
Solanaceae	Solanum lycopersicum	tomato

Additional information on host records and associated specimens can be found on :
http://projects.bebif.be/fruitfly/taxoninfo.html?id=296

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, protein bait capsules (Questlure) and three component Biolure.

Male flies can be attracted by vert lure (occasionally also found in cue lure traps, but at low numbers. See for example Mwatawala et al., 2006) .

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 vertebratus is found throughout Sub-Saharan Africa including drier areas of Sahelian belt and southern Africa. Present in Madagascar, and the Comoro archipelago (De Meyer et al., 2012). Also known from the Arabian Peninsula. 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=296

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.

Mwatawala, M.W., M. De Meyer, R.H. Makundi & A.P. Maerere. 2006. Biodiversity of fruit flies (Diptera, Tephritidae) in orchards in different agro-ecological zones of the Morogoro, region, Tanzania. Fruits 61: 321-332.

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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