

Factsheet *Dacus ciliatus* Loew

Original name: *Dacus ciliatus* Loew, 1862: 7.

Vernacular name: Ethiopian fruit fly, lesser pumpkin fly

Formal redescription (after White, 2006)

Wing length, 4.4-6.0 mm.

Head. Pedicel+first flagellomere not longer than ptilinal suture. Face, antennal furrow with a dark spot. Frons, frontal setae 0-2, orbital setae 0-1.

Thorax. Scutum predominantly red-brown; postpronotal lobe yellow to bicoloured; notopleural callus yellow; notopleural xanthine normally wedge shaped and joined to notopleural callus (but can be reduced); lateral and medial postsutural vitta absent. Scutellum without any dark patterning (except for basal dark margin). Anepisternum with a stripe from notopleural callus to (or almost to) katapisternum; extended onto katapisternum. Laterotergal xanthine confined to katatergite. Thoracic setae. Anterior notopleural seta present or absent; anterior supra-alar seta absent (one specimen observed with a seta on one side [invalidly named as "T. mallyi"]).

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 extending below vein R₂₊₃ before wing apex; expanded into a small spot at apex. Anal streak variable (sometimes confined to within bcu). Cells bc and c hyaline. Without any crossbanding.

Legs. Male and female femora pale; or female mid- and hindfemora tending to bicoloured (pale basally, reddish-brown apically).

Abdomen. Predominantly fulvous; shape and patterning (see image; CD-C); tergites III and IV unmarked, sometimes III and rarely also IV, with an isolated sublateral dark spot; no medial stripe on tergite IV. 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, 1.5-1.6 mm.

Encyclopedia of Life link: <http://eol.org/pages/725271/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+ciliatus&searchTax=

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

Biology

Dacus ciliatus can complete its life cycle in 49 to 54 days at 25°C (Vayssieres et al., 2008). Adults can live for more than 17 weeks (Vayssieres et al. 2008). Females start laying eggs in fruit at 10 to 13 days after adult emergence (Vayssieres et al. 2008). Up to 210 eggs can be laid by a female *D. ciliatus*. Eggs are laid under the fruit skin. Eggs are usually white to creamy yellow in colour. Egg incubation period is about 3 days. Eggs hatch into larvae which feed on the fruit pulp. Larvae are cream coloured. There are three larval instars. Larval development can take 4-7 days while pupation lasts for 7 – 14 days. Adult longevity can be up to 45 days (El Nahal et al., 1971; Patel and Patel, 1998).

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
Apocynaceae	Apocynaceae (unspecified)	
Crassulaceae	Cotyledon orbiculata	
Cucurbitaceae	Citrullus colocynth	bitter apple
Cucurbitaceae	Citrullus lanatus	watermelon
Cucurbitaceae	Coccinia adoensis	
Cucurbitaceae	Coccinia grandis	
Cucurbitaceae	Coccinia palmata	
Cucurbitaceae	Coccinia quinqueloba	
Cucurbitaceae	Coccinia sp.	
Cucurbitaceae	Coccinia trilobata	
Cucurbitaceae	Corallocarpus ellipticus	
Cucurbitaceae	Corallocarpus schimperi	
Cucurbitaceae	Cucumis africanus	
Cucurbitaceae	Cucumis anguria	
Cucurbitaceae	Cucumis dipsaceus	teasel gourd
Cucurbitaceae	Cucumis ficifolius	
Cucurbitaceae	Cucumis melo	melon
Cucurbitaceae	Cucumis sativus	cucumber
Cucurbitaceae	Cucumis sp.	
Cucurbitaceae	Cucurbita maxima	pumpkin, squash
Cucurbitaceae	Cucurbita moschata	
Cucurbitaceae	Cucurbita pepo	gourd, squash, zucchini
Cucurbitaceae	Cucurbita sp.	pumpkin, squash
Cucurbitaceae	Cucurbitaceae (unspecified)	
Cucurbitaceae	Cylanthra pedata	
Cucurbitaceae	Kedrostis foetidissima	
Cucurbitaceae	Kedrostis leloja	
Cucurbitaceae	Lagenaria leucaritha	bottle gourd
Cucurbitaceae	Lagenaria siceraria	water-bottle

Cucurbitaceae	Lagenaria sphaerica	
Cucurbitaceae	Luffa acutangula	ridged gourd, sponge gourd
Cucurbitaceae	Luffa cylindrica	smooth luffa
Cucurbitaceae	Momordica balsamina	
Cucurbitaceae	Momordica charantia	bitter melon, bitter gourd
Cucurbitaceae	Momordica rostrata	
Cucurbitaceae	Momordica trifoliolata	
Cucurbitaceae	Peponium mackenii	
Cucurbitaceae	Sechium edule	chayote
Cucurbitaceae	Trichosanthes cucumerina	snakegourd
Fabaceae	Phaseolus sp.	
Malvaceae	Gossypium sp.	
Passifloraceae	Passiflora caerulea	blue passion fruit
Solanaceae	Lycopersicon pimpinellifolium	Cherry tomato
Solanaceae	Solanum aethiopicum	
Solanaceae	Solanum anguivi	
Solanaceae	Solanum lycopersicum	tomato
Solanaceae	Solanum scabrum	

Additional information on African host records and associated specimens can be found on :
<http://projects.bebif.be/fruitfly/taxoninfo.html?id=272>

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 weakly attracted by protein bait products such as liquid protein baits and three-component Biolure.

No specific lures are known for male specimens.

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 ciliatus is found throughout Sub-Saharan Africa including drier areas of Sahelian belt and southern Africa. Present in Madagascar, Mauritius, La Réunion and the Comoro archipelago (De Meyer et al., 2012). Also known from the Arabian Peninsula, the Near East and Central Asia.

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

<http://projects.bebif.be/fruitfly/taxoninfo.html?id=272>

For worldwide distribution, see GBIF: <http://www.gbif.org/species/1625561>

Quarantine regulations

Dacus ciliatus is on the A2 quarantine pest list of the EPPO (<https://gd.eppo.int/taxon/DACUCI/categorization>).

Others

CABI Plantwise factsheet on *D. ciliatus* can be found at:

<http://www.plantwise.org/knowledgebank/datasheet.aspx?dsid=17682>

CABI invasive species compendium on *D. ciliatus* can be found at:

<http://www.cabi.org/isc/datasheet/17682>

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