

Factsheet *Ceratitis malgassa* Munro

Original name: *Ceratitis malgassa* Munro, 1939 : 141.

Vernacular name: Madagascan fruit fly

Formal redescription (after De Meyer, 2000)

Body length: 5.06 (4.45-5.55) mm; wing length: 5.01 (4.65-5.55) mm.

Male

Head. Antenna yellow or yellow-orange. Third antennal segment twice as long as second segment. Arista almost bare, at most with very short hairs on base. Frons yellow with orange patches; with short scattered hairs which are largely the same colour as frons. Frontal and orbital bristles pale, upper orbital sometimes dark, ocellar black; lower orbital modified, about as long as arista, with apical end white and narrowly spatulate shaped, upper orbital and frontals partly reduced, only moderately developed. Face yellow-white, lower eye margin darker yellow. Genal bristle pale; genal setulae pale, weakly developed. Postocellar and outer vertical pale.

Thorax. Postpronotum yellow-white, with distinct black spot. Mesonotal pattern: ground colour orange-brown, microtrichiae pattern silvery with brownish shine, spots black-brown except rather indistinct sutural yellow or yellow-white spots, prescutellar yellow markings merged. Scapular setae pale. Scutellum yellow-white, basally with two dark narrowly merged spots, apically with three merged spots, only slightly incised. Anepisternum with lower half darker yellow but not distinct, hairs in lower half darker yellow.

Legs yellow; setation typical for subgenus, mainly pale especially on femora. Fore femur posteriorly with bush of longer orange-coloured hairs along entire length, posterodorsal hairs longer. Anteroventrally row of longer hairs, as long as posterodorsal hairs; ventral spines yellow-orange. Mid femur posteroventrally with row of longer hairs. Hind femur with longer hairs dorsally and ventrally on apical fourth.

Wing. Banding; marginal band with narrow interruption, sometimes partly touching; cubital band free; medial band joined with marginal band; crossvein r-m just beyond middle of discal cell. Vein R1 before crossvein r-m. Orientation crossvein dm-cu variable.

Abdomen. Yellow. Setation and banding typical for subgenus.

Female

As in male except for the following characters: Arista with slightly longer hairs. Hairs on frons distinctly darker than frons. Darker colouration on lower eye margin not outspoken. Frontal, orbital and ocellar bristles black, orbitals not modified, frontal bristles well developed. Face sometimes darker. Genal bristles dark or pale; genal setulae dark, strongly developed. Incisions of apical scutellar spots not as deep as in male. Legs without feathering; ventral spines on fore femur black. Oviscape shorter than abdominal terga.

Encyclopedia of Life link: <http://eol.org/pages/724840/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=Ceratitis+malgassa&searchTax=

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

Biology

Ceratitis malgassa can complete its life cycle in 33-73 days (Dubois, 1965). Adults can live up to 16 weeks (Dubois, 1965). Females start laying eggs in fruit between 4 and 16 days after adult emergence. Eggs are laid under the fruit skin. Eggs are usually white to creamy yellow in colour. The area on the fruit skin where eggs are laid usually becomes discoloured. Eggs hatch into larvae which feed on the fruit pulp. Larvae are cream coloured. There are three larval instars. The larval duration of *C. cosyra* varies between 9 and 19 days at temperatures ranging from 25°C to 27°C depending on larval medium (Dubois, 1965). Fully fed larvae burrow into the soil where they pupate. The pupal stage lasts between 13 and 36 days depending on temperature (Dubois, 1965), after which an adult fly emerges and the cycle continues.

Host plant list

A polyphagous species reported from a limited number of hosts, including guava and citrus as well as other hosts (see White & Elson-Harris, 1994 for details). However most of these records need to be confirmed.

Additional information on host records and associated specimens can be found on :

<http://projects.bebif.be/fruitfly/taxoninfo.html?id=6>

Impact & management

Data on losses incurred by *Ceratitis malgassa* or its impact on fruit production are lacking although Dubois (1965) mentions it as being the main restriction for expansion of citrus industry in Madagascar. It is regularly encountered in trimedlure trapping in citrus orchards.

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 and three component Biolure.

Male flies can be attracted by the following lures: trimedlure and Enriched Ginger Oil (EGO) lure.

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

Ceratitis malgassa is an endemic species of the Western Indian Ocean islands of Madagascar. There are some occasional records from Mauritius and the Comores (see De Meyer et al., 2013). Not established outside this endemic area.

Distribution map for Africa, based upon specimen records with georeferences is available at: <http://projects.bebif.be/fruitfly/taxoninfo.html?id=6>

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