Factsheet *Ceratitis catoirii* Guérin-Méneville

Original name: *Ceratitis catoirii* Guérin-Méneville, 1843: 197.

Vernacular name: Mascarene fruit fly

(updated April 29th, 2020)

Formal redescription (after De Meyer, 2000)

Body length: 5.25 (4.65-5.55) mm; wing length: 5.26 (4.70-5.55) mm.

Male
Head. Antenna pale yellow. Third antennal segment twice as long as second segment. Arista almost bare, at most with very short hairs on base. Frons pale yellow; with short scattered hairs which are largely the same colour as frons. Frontal bristles yellow, weakly developed; ocellar and orbital bristles pale or dark; lower orbital modified, about as long as arista, apical end white and broadly spatulate shaped; upper orbital weakly developed. Face yellow-white. Genal bristle pale; genal setulae pale, weakly developed. Postocellar and outer vertical pale.
Thorax. Postpronotum yellow-white, with distinct black spot. Mesonotum: ground colour black, microtrichiae pattern silvery with ashgrey shine, spots black except sutural yellow-white spots, prescutellar yellow or yellow-white markings separate or merged. Scapular setae pale. Scutellum yellow-white, basally with two dark merged spots, apically with three merged spots, only slightly incised. Anepisternum pale yellow, lower half darker yellow but indistinct, hairs in lower half also slightly 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 with row of long hairs anteroventrally. Hind femur with longer hairs dorsally and ventrally on apical fourth.
Wing. Marginal band with clear and complete interruption; cubital band joined with discal band; medial band free; crossvein r-m at middle of discal cell. Vein R1 beyond or equal with crossvein r-m. Crossvein dm-cu straight.
Abdomen. Yellow. Setation and banding typical for subgenus.

Female
As in male except for the following characters: Third antennal segment darker, yellow to yellow-orange. Hairs on arista slightly more developed. Frons yellow, occasionally more palish; with short hairs which are distinctly darker than frons. All cephalic bristles dark, except postocellar and outer vertical. Orbitals not modified, frontals well developed. Genal bristle pale or dark; genal setulae dark, strongly developed. Sometimes few dark hairs in lower half of anepisternum. Scapular setae rarely black. Legs in general with darker pilosity; no feathering; ventral spines on fore femur black. Wings, medial band occasionally touching marginal. Crossvein dm-cu posteriorly more inwards than anteriorly. Oviscape shorter than abdominal terga.

Encyclopedia of Life link: http://eol.org/pages/726760/overview

DNA barcoding

A relatively limited number of DNA barcodes of *C. catoirii* from La Réunion are available on the Barcode of Life Data Systems (BOLD, March 2017) at:

http://www.boldsystems.org/index.php/Taxbrowser_Taxonpage?taxon=Ceratitis+catoirii&searchTax= (accessed May 2020)

In BOLD, *C. catoirii* only forms monospecific BINs including representatives from the geographical distribution of this species. For this reason, DNA barcoding might be considered as a suitable tool for its molecular identification.

Biology

Ceratitis catoirii can complete its life cycle in about 49 days at 25°C (Duyck et al., 2007). Adult females can live for up to 12 weeks (Duyck et al., 2007). Females start laying eggs in fruit at about 1-2 weeks 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. catoirii* varies between 6 and 22 days at temperatures ranging between 30°C and 15°C (Duyck and Quilici, 2002). The pupal stage lasts for 9 to 36 days at 30°C to 15°C (Duyck and Quilici, 2002), after which an adult fly emerges and the cycle continues.

Host plant list

A polyphagous species found on a limited number of hosts. It is largely displaced by invasive fruit flies and currently rarely encountered. Throughout its range it is recorded from the hosts listed in the table below.

PlantFamily	PlantLatinName	PlantCommonNameEnglish
Anacardiaceae	Mangifera indica	mango
Combretaceae	Terminalia catappa	tropical almond
Myrtaceae	Eugenia uniflora	surinam cherry, pitanga cherry
Myrtaceae	Psidium cattleyanum	strawberry guava, cherry guava
Myrtaceae	Psidium guajava	common guava
Myrtaceae	Syzygium jambos	rose-apple

A number of other hosts are listed by Hancock (1984) and White & Elson-Harris (1994) but need confirmation. A list of host plants can be found in Quilici & Jeuffrault (2001). Additional information on host records and associated specimens can be found on :
http://projects.bebif.be/fruitfly/taxoninfo.html?id=4

Impact & management

Data on losses incurred by *Ceratitis catoirii* or its impact on fruit production are lacking. They appear to be minimal because of its rarity and displacement by invasive species.

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.

No specific male attractants are known.

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 catoirii is an endemic species of the Western Indian Ocean islands of La Réunion and Mauritius. Possibly extinct on Mauritius and threatened on La Réunion because of interspecific competition with and displacement by introduced species *Ceratitis capitata*, *C. quilicii* and *Bactrocera zonata*. 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=4

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