Factsheet *Ceratitis quilicii* De Meyer et al.

Original name: *Ceratitis quilicii* De Meyer, Mwatawala & Virgilio, 2016 : 3.

Vernacular name: Cape fruit fly

(updated April 29th, 2020)

Formal redescription (after De Meyer et al., 2016)

Size 3.68-5.68 mm, wing length 4.48-6.08 mm.

Male
Head. Antenna yellow. First flagellomere in lateral view 2-3 times as long as wide, obtuse apically. Arista short to medium pubescent, ventral proximal rays at most twice width of arista at base. Two frontal setae, thinner than, and subequal in length to, anterior orbital seta; two orbital setae, anterior orbital longer than posterior one; ocellar seta at least 4 times as long as ocellar triangle; postocellar seta black, shorter than lateral vertical seta. Frons convex, not protruding in lateral view, yellow to yellowish-white. Genal seta and setulae black. Face and occiput yellowish-white, the latter somewhat darker dorsally.
Thorax. Postpronotal lobe white to yellowish-white, without black middle spot around base of postpronotal seta. Scutum ground color greyish to greyish-brown, sometimes with orange tinge; with streaks and darker markings but without distinct spots except pair of separate prescutellar white markings, usually with pale yellowish-white area in between. Setae black. Anepisternum on ventral half darker yellowish-brown to brown; with pale pilosity, one anepisternal seta. Anatergite and katatergite white. Scutellum yellowish-white, usually with two narrow separate dark brown spots basally, sometimes less distinct; apically with three separate black spots, extending anteriorly to level of or just anterior of basal scutellar seta. Subscutellum black.
Legs. Slender; yellow or yellowish-white except where otherwise noted; setation mixed pale and black. Forefemur with dispersed rows of long black setulae posterodorsally, posteroventrally shorter and pale; ventral spine-like setae black. Midfemur with few dispersed pale setulae ventrally; midtibia thin at base, moderately and gradually broadened; anteriorly black with conspicuous silvery shine when viewed from certain angle on distal 0.66 to 0.75 (black color sometimes inconspicuous in teneral specimens but silvery shine is always present), black color usually not reaching the ventral and dorsal margins, especially on basal part; black feathering dorsally along distal 0.75, ventrally along distal 0.66, occasionally to distal 0.75. Hindfemur at distal 0.25 with longer setulae dorsally and ventrally.
Wing. Markings yellowish-brown. Anterior apical band, subapical bandand discal band present, posterior apical band absent; anterior apical band not touching discal band; subapical band isolated. Cross-vein R-M situated at or just before midlength of cell dm. Brown streaks and spots present in basal cells.
Abdomen. Ground colour mainly yellow. Tergites 2 and 4 on posterior half with greyish microtrichosity; anterior margin sometimes narrowly brownish colored, especially laterally. Tergite 3 with posterior half patchily brownish, anterior half yellowish-brown, both parts not clearly demarcated; sometimes more extensively brown. Tergite 5 with basal half brownish, sometimes divided medially by paler spot.

Female. Unknown

Remark: *Ceratitis quilicii* belongs to the FAR complex (see De Meyer et al., 2015 for a review). While male specimens can be easily differentiated from *C. fasciventris* and *C. anonae*, female specimens of *Ceratitis fasciventris*, *C. rosa* and *C. quilicii* cannot be differentiated on morphological grounds. The

differences with *C. anonae* are minute and subtle and these can be easily confused. Male specimens of *C. rosa* and *C. quilicii* can be differentiated by the shape and ornamentation of the mid tibia. Until recently, specimens of *C. quilicii* were considered as belonging to *C. rosa*. The former was only in 2015 recognized as a separate species. Large part of the literature on *C. rosa* will thus include information actually referring to *C. quilicii*, *C. rosa* or both.

No separate Encyclopedia of Life page. General information is under page of *C. rosa*:

http://eol.org/pages/725499/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+quilicii&searchTax= (accessed May 2020)

The molecular identification of *C. quilicii* through DNA barcoding proves to be problematic as this species cannot be properly resolved from the closely related species of the FAR (*C. fasciventris, C. anonae, C. rosa*) complex (De Meyer et al., 2015). Accordingly, in BOLD, these four species are recovered as part of multispecific BINs. Additionally, the presence of unidentified / possibly misidentified reference sequence in BINs in which this species is represented, might also bias its molecular ID.

Biology

Prior to 2015, there was no distinction between *Ceratitis quilicii* and *Ceratitis rosa* in the scientific literature. As such biological data published prior to 2015 could have possibly been related to both species. *Ceratitis quilicii* can complete its immature development in 23 - 65 days at 30°C - 15°C (Tanga et al., 2015). Adult females lay eggs 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.

Host plant list

Ceratitis quilicii is a polyphagous species. Currently, available host records (http://projects.bebif.be/fruitfly/taxoninfo.html?id=434) can refer to *C. quilicii*, *C. rosa* or to both. The table below lists only those hosts known for *C. quilicii* for which the identity of the specimens reared have been confirmed by RMCA (see Meyer et al. (2016).

PlantFamily	PlantLatinName	PlantCommonNameEnglish
Myrtaceae	Psidium cattleyanum	strawberry guava, cherry guava
Myrtaceae	Psidium guajava	common guava
Myrtaceae	Syzygium jambos	rose-apple
Rosaceae	Eriobotrya japonica	loquat

Rosaceae	Malus domestica	apple
Rosaceae	Prunus persica	peach
Rosaceae	Pyrus communis	pear
Rosaceae	Rubus sp.	berry
Rubiaceae	Coffea arabica	arabica coffee
Sapotaceae	Chrysophyllum magalismontanum	
Sapotaceae	Englerophytum natalense	

Additional information on host records and associated specimens can be found on :
http://projects.bebif.be/fruitfly/taxoninfo.html?id=434

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), protein bait capsules (Questlure), three component Biolure and two component Biolure (ammonium acetate and trimethylamine).

Male flies can be attracted by 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). Specific trapping information can be found in Mwatawala et al. (2015).

Distribution

Ceratitis quilicii is found throughout eastern and southern Africa, from the Western Cape northwards till Kenya. It appears to prefer cooler conditions than its close ally, *C. rosa*. The species was also introduced into Mauritius and La Réunion. 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=434

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