Factsheet *Ceratitis fasciventris* (Bezzi)

Original name: *Pterandrus rosa* var*. fasciventris* Bezzi, 1920 : 228.

Vernacular name: none

Formal redescription (after De Meyer & Freidberg, 2006)

Body length: 4.47 (3.95-5.15) mm; wing length: 4.96 (4.45-5.75) mm.

Male
Head: Antenna yellowish orange. First flagellomere 2-3 times as long as pedicel. Arista with short to moderately long rays; ventral rays shorter and sparser than dorsal rays, especially basally. Frons yellow; with short scattered setulae distinctly darker than frons. Frontal setae well developed. Face yellowish white. Genal seta and setulae dark, well developed.
Thorax: Postpronotal lobe yellowish white, without spot. Mesonotum: ground color dark gray, sometimes with orange tinge; with streaks and darker markings but without distinct spots, except prescutellar white separate markings, usually with paler gray area in between, occasionally merged. Scapular setae dark. Scutellum yellowish white, basally usually without dark spots, rarely with two separate spots; apically with three separate dark spots, extending to basal half, sometimes to basal 0.33. Anepisternum on ventral half yellowish brown; setulae pale.
Legs: Yellow except where otherwise noted; setation typical for subgenus, mixed pale and dark. Foreleg: at most slightly darker yellow anteriorly; femur without bushy feathering posteriorly, only row of dispersed, long and usually black setulae posteriorly, setulae shorter and pale posterodorsally and posteroventrally; ventral setae black. Midleg: femur with dispersed pale setulae at base ventrally; tibia not broadened; anteriorly with inconspicuous silvery shine on distal half when viewed from certain angle; ventrally and dorsally with dark feathering along distal half. Hindleg: femur at apical 0.25 with longer setulae dorsally and ventrally.
Wing: bands brown or yellowish brown. Interruption between marginal and discal bands near vein R_1 clear and complete; cubital band free; medial band absent; crossvein R-M opposite middle of discal cell, sometimes just proximal to middle. Apex of vein R_1 distal to level of crossvein R-M. Crossvein DM-Cu oblique anterobasally.
Abdomen: Mostly yellow. Tergites 2 and 4 with pale gray band on posterior half, anterior margin sometimes with narrowly brownish colored. Tergite 3 with distinct brownish black transverse band along posterior half; rarely more complete brown. Tergite 5 with basal half brownish, sometimes divided medially into two spots, or only narrowly brownish along anterior margin. Male epandrium in lateral view with posterior lobe of lateral surstylus short and straight, anterior lobe well pronounced.

Female
As male except for the following characters: Anepisternum on ventral half brown or yellowish brown. Crossvein DM-Cu variable. Legs without feathering; forefemur with posterodorsal row usually partly dark; forefemur posteroventrally with pale pilosity. Oviscape shorter than preabdomen. Aculeus at most six times longer than wide; tip with distinct apical indentation and lateral margin slightly sinuous.

Remark: *Ceratitis fasciventris* belongs to the FAR complex (see De Meyer et al., 2015 for a review). While male specimens can be easily differentiated from the other representatives in this complex, 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. Among male representatives of *C. fasciventris* we observe two morphotypes (so-called F1 and F2, see De Meyer et al., 2015). These differ in the coloration of the mid tibia.

Encyclopedia of Life link: http://eol.org/pages/3669750/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+fasciventris&searchTax=

The molecular identification of *C. fasciventris* 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) as well as from the recently described *C. quilicii* (De Meyer et al., 2016). Accordingly, In BOLD, these four species are recovered as part of multispecific BINs.

Biology

Ceratitis fasciventris females and males have a mean longevity of 41 and 44 days respectively (Manrakhan and Lux, 2006). *Ceratitis fasciventris* females can lay 343 eggs in her lifetime (Manrakhan and Lux, 2006). 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. Fully fed larvae burrow into the soil where they pupate. An adult fly emerges from the pupa and continues the life cycle.

Host plant list

Ceratitis fasciventris is a polyphagous species reported from a number of wild and commercial hosts. Detailed studies on host range can be found for Kenya (Copeland et al., 2006). Throughout its range it is recorded from the hosts listed in the table below.

PlantFamily	PlantLatinName	PlantCommonNameEnglish
Anacardiaceae	Harpephyllum caffrum	kaffir plum, wild plum
Anacardiaceae	Mangifera indica	mango
Anacardiaceae	Spondias mombin	tropical plum
Anisophylleaceae	Anisophyllea laurina	
Annonaceae	Annona muricata	soursop
Annonaceae	Annona senegalensis	wild custard apple
Annonaceae	Artabotrys monteiroae	
Annonaceae	Monanthotaxis parvifolia	
Apocynaceae	Acokanthera schimperi	round-leaved poison bush
Apocynaceae	Carissa longiflora	
Canellaceae	Warburgia salutaris	pepper-bark tree
Capparaceae	Capparaceae (unspecified)	
Cecropiaceae	Myrianthus arboreus	bugtree?

Cucurbitaceae	Momordica calantha	
Ebenaceae	Diospyros montana	mountain persimmon
Ebenaceae	Euclea divinorum	
Euphorbiaceae	Drypetes gerrardii	
Euphorbiaceae	Drypetes sp.	
Flacourtiaceae	Dovyalis caffra	kei apple
Flacourtiaceae	Dovyalis sp.	
Flacourtiaceae	Rawsonia lucida	
Flacourtiaceae	Rawsonia sp.	
Flacourtiaceae	Rawsonia usambarensis	
Lauraceae	Persea americana	avocado
Loganiaceae	Strychnos spinosa	
Meliaceae	Ekebergia capensis	dog plum, Cape ash
Moraceae	Antiaris toxicaria	antiaris, false iroko, false mvule
Moraceae	Ficus sp.	fig
Myrtaceae	Psidium guajava	common guava
Myrtaceae	Syzygium jambos	rose-apple
Olacaceae	Strombosia scheffleri	
Olacaceae	Ximenia americana var. americana	
Opiliaceae	Opilia amentacea	
Passifloraceae	Passiflora cf subpeltata	
Rhamnaceae	Ziziphus abyssinica	
Rosaceae	Eriobotrya japonica	loquat
Rosaceae	Prunus africana	
Rosaceae	Prunus persica	peach
Rosaceae	Prunus sp. cf capuli	
Rubiaceae	Coffea arabica	arabica coffee
Rubiaceae	Coffea canephora	robusta coffee
Rubiaceae	Coffea sp.	coffee
Rutaceae	Casimiroa edulis	white sapote
Rutaceae	Citrus limon	lemon
Rutaceae	Citrus reticulata	tangerine
Rutaceae	Citrus sinensis	sweet orange
Rutaceae	Citrus x tangelo	tangelo
Rutaceae	Vepris trichocarpa	
Sapindaceae	Allophylus ferrugineus	
Sapindaceae	Filicium decipiens	fernleaf
Sapindaceae	Pancovia turbinata	
Sapotaceae	Chrysophyllum albidum	white star-apple
Sapotaceae	Englerophytum natalense	
Sapotaceae	Englerophytum oblanceolatum	
Sapotaceae	Manilkara butugi	
Sapotaceae	Manilkara zapota	sapodilla, chicle
Sapotaceae	Pouteria altissima	
Sapotaceae	Synsepalum brevipes	

Sapotaceae	Vitellaria paradoxa	shea butter
Simaroubaceae	Harrisonia abyssinica	
Solanaceae	Solanum mauritianum	bugtree
Sterculiaceae	Theobroma cacao	cocoa
Vitaceae	Vitaceae (unspecified)	

Additional information on host records and associated specimens can be found on :
http://projects.bebif.be/fruitfly/taxoninfo.html?id=63

Impact & management

Details on losses incurred by *Ceratitis fasciventris* on commercial crops are very limited. Vayssières et al. (2004) reports that 0.3 to 4.2% of flies emerging from infested mangoes in Mali belong to this species (note: this is prior to the introduction of *B. dorsalis*) and very low numbers of trap catches in mango orchards in Benin (Vayssières et al., 2015).

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 trimedlure.

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 fasciventris is found throughout Sub-Saharan Africa, except for southern Africa (absent south of Angola, Zambia, Malawi). Not established outside mainland Africa.

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

http://projects.bebif.be/fruitfly/taxoninfo.html?id=63

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