Factsheet *Trirhithrum nigerrimum* (Bezzi)

Original name: *Trirhithrum nigra* var. *nigerrima* Bezzi, 1913: 26.

Vernacular name: none

(updated April 29th, 2020)

Formal redescription (after White et al., 2003)

Female: Wing length=2.8-3.6 mm; Aculeus length=0.62-0.78 mm. Male: Wing length=2.4-3.4 mm.

Male
Head: Arista long plumose. Two pairs frontal setae. Face white, at least in lower half.
Thorax: Postpronotal lobe entirely dark. Scutum without silvery-white microtrichose areas. Scutellum disk dark; margin with baso-lateral pale spots; spots adjacent to bases of apical setae. Anepisternum entirely dark; with 1 seta. Anatergite lacking a bright silvery spot.
Wing: Pattern diffuse, especially in costal region; banding pattern not distinct. Cell c largely dark, at most with a small hyaline spot. Without a distinct dark mark on C at/before end of Sc and without a contrastingly dark area near base of cells dm or cu_1; pterostigma markedly darker than rest of pattern. Anal lobe variable from almost entirely hyaline to almost entirely dark. No bulla.
Legs: Femora dark.
Abdomen: With distinct grey microtrichose stripes or pattern on terga II, III and IV.

Female
Head, thorax, legs and abdomen mostly as male; postpronotal lobe sometimes narrowly pale around margin. Wing pattern distinct. Subbasal and discal crossbands fused posterior to Rs and cell c extensively dark (but considerably less so than male); no distinct dark mark on C at/before end of Sc; pterostigma markedly darker than rest of pattern; cell c largely dark; if extensively hyaline, then with central dark spot and basal and apical dark areas more or less connected by a diffusely darkened area; basal area of cell r_1 immediately above vein R_{2+3}/R_{4+5} bifurcation with a dark spot that is broadly connected to large dark area of cell r_1. Discal crossband distally aligned with a point within of pterostigma and R-M crossvein within discal crossband. Subapical crossband joined to discal crossband; base narrow, largely or entirely confined to cell r_{4+5}. Posterior apical crossband reduced to a short spur. Anal lobe coloured but with a hyaline indentation (ending before vein A_1+Cu_2). No bulla. Terminalia with aculeus short, stout and pointed (appears asymmetric under a coverslip; dorsal view apparently similar to *T. leonense*); spermatheca curved and bulbous (similar to *T. occipitale*).

Encyclopedia of Life link: http://eol.org/pages/727810/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=Trirhithrum+nigerrimum&searchTax=
(accessed May 2020)

DNA barcoding might be considered as a fairly suitable tool for the molecular identification of *T. nigerrium*, regardless the BINs in which this species is represented, also include a few unidentified / possibly misidentified reference sequences

Host plant list

A polyphagous pest reported from a wide variety of wild and commercial hosts, including arabica and robusta coffee. It is also known from a range of other Rubiaceae besides *Coffea* spp. Throughout its range it is recorded from the hosts listed in the table below.

PlantFamily	PlantLatinName	PlantCommonNameEnglish
Apocynaceae	Carissa tetramera	
Boraginaceae	Bourreria petiolaris	
Celastraceae	Elaeodendron schweinfurthianum	
Erythroxylaceae	Erythroxylon coca	
Euphorbiaceae	Antidesma venosum	
Euphorbiaceae	Flueggea virosa	
Flacourtiaceae	Flacourtia indica	governor's plum
Flagellariaceae	Flagellaria guineensis	
Goodeniaceae	Scaevola sericea	
Melastomataceae	Clidemia hirta	
Menispermaceae	Cissampelos pareira	
Rubiaceae	Chassalia afzelii	
Rubiaceae	Chassalia umbraticola	
Rubiaceae	Chazaliella abrupta var abrupta	
Rubiaceae	Coffea arabica	arabica coffee
Rubiaceae	Coffea canephora	robusta coffee
Rubiaceae	Coffea sp.	coffee
Rubiaceae	Feretia apodanthera	
Rubiaceae	Ixora narcissodora	
Rubiaceae	Polysphaeria parvifolia	
Rubiaceae	Polysphaeria sp.	
Rubiaceae	Psychotria amboniana var amboniana	
Rubiaceae	Psychotria capensis	
Rubiaceae	Psychotria capensis riparia	
Rubiaceae	Psychotria holtzii	
Rubiaceae	Psychotria lauracea	
Rubiaceae	Psychotria punctata var. punctata	
Rubiaceae	Psychotria punctata var. tenuis	
Rubiaceae	Psychotria sp.	
Rubiaceae	Psychotria succulenta	
Rubiaceae	Triainolepis africana	
Rubiaceae	Tricalysia ovalifolia	
Rubiaceae	Tricalysia pallens	
Rutaceae	Murraya paniculata	orange jessamine

Simaroubaceae	Harrisonia abyssinica	
Solanaceae	Solanum sp.	
Verbenaceae	Premna chrysoclada	
Verbenaceae	Premna resinosa holstii	
Vitaceae	Ampelocissus africana	
Vitaceae	Cayratia gracilis	
Vitaceae	Cissus aralioides	
Vitaceae	Cyphostemma adenocaule	
Vitaceae	Cyphostemma cirrhosum	
Vitaceae	Cyphostemma duparquetii	
Vitaceae	Cyphostemma hildebrandtii	

Additional information on host records and associated specimens can be found on :
http://projects.bebif.be/fruitfly/taxoninfo.html?id=136

Impact & management

No quantitative data are available on the losses incurred by *Trirhithrum nigerrimum*. Silvestri (1913) considers it of minor importance and gives variable infestation percentages ranging from 5 to 35% in coffee.

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.

There are no specific male attractants 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

Trirhithrum nigerrimum is found throughout Sub-Saharan Africa but absent in large parts of southwestern Africa. Found on the Comoro archipelago (De Meyer et al., 2012). 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=136

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