

Factsheet *Trirhithrum nigerrimum* (Bezzi)

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

Vernacular name: none

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 cu₁; 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 r₁ immediately above vein R₂₊₃/R₄₊₅ bifurcation with a dark spot that is broadly connected to large dark area of cell r₁. 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 r₄₊₅. Posterior apical crossband reduced to a short spur. Anal lobe coloured but with a hyaline indentation (ending before vein A₁+Cu₂). 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=

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

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	<i>Carissa tetramera</i>	
Boraginaceae	<i>Bouyeria petiolaris</i>	
Celastraceae	<i>Elaeodendron schweinfurthianum</i>	
Erythroxylaceae	<i>Erythroxylon coca</i>	
Euphorbiaceae	<i>Antidesma venosum</i>	
Euphorbiaceae	<i>Flueggea virosa</i>	
Flacourtiaceae	<i>Flacourtia indica</i>	governor's plum
Flagellariaceae	<i>Flagellaria guineensis</i>	
Goodeniaceae	<i>Scaevola sericea</i>	
Melastomataceae	<i>Clidemia hirta</i>	
Menispermaceae	<i>Cissampelos pareira</i>	
Rubiaceae	<i>Chassalia afzelii</i>	
Rubiaceae	<i>Chassalia umbraticola</i>	
Rubiaceae	<i>Chazaliella abrupta</i> var <i>abrupta</i>	
Rubiaceae	<i>Coffea arabica</i>	arabica coffee
Rubiaceae	<i>Coffea canephora</i>	robusta coffee
Rubiaceae	<i>Coffea</i> sp.	coffee
Rubiaceae	<i>Feretia apodanthera</i>	
Rubiaceae	<i>Ixora narcissodora</i>	
Rubiaceae	<i>Polysphaeria parvifolia</i>	
Rubiaceae	<i>Polysphaeria</i> sp.	
Rubiaceae	<i>Psychotria amboniana</i> var <i>amboniana</i>	
Rubiaceae	<i>Psychotria capensis</i>	
Rubiaceae	<i>Psychotria capensis riparia</i>	
Rubiaceae	<i>Psychotria holtzii</i>	
Rubiaceae	<i>Psychotria lauracea</i>	
Rubiaceae	<i>Psychotria punctata</i> var. <i>punctata</i>	
Rubiaceae	<i>Psychotria punctata</i> var. <i>tenuis</i>	
Rubiaceae	<i>Psychotria</i> sp.	
Rubiaceae	<i>Psychotria succulenta</i>	
Rubiaceae	<i>Triainolepis africana</i>	
Rubiaceae	<i>Tricalysia ovalifolia</i>	
Rubiaceae	<i>Tricalysia pallens</i>	
Rutaceae	<i>Murraya paniculata</i>	orange jessamine
Simaroubaceae	<i>Harrisonia abyssinica</i>	
Solanaceae	<i>Solanum</i> sp.	
Verbenaceae	<i>Premna chrysoclada</i>	
Verbenaceae	<i>Premna resinosa</i> <i>holstii</i>	

Vitaceae	Ampelocissus africana	
Vitaceae	Cayratia gracilis	
Vitaceae	Cissus aralioides	
Vitaceae	Cyphostemma adenocaula	
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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