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Mulvia trialbofasciata n. sp. from Africa
(Hemiptera: Fulgoromorpha: Ricaniidae)

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ABSTRACT. A new planthopper species of the family Ricaniidae *Mulvia trialbofasciata* n. sp. from Africa is described and illustrated.

Key words: entomology, taxonomy, Hemiptera, Fulgoromorpha, Ricaniidae, *Mulvia* STAL, 1866, new species, Africa.

INTRODUCTION

The genus *Mulvia* was erected by STAL (1866) for 3 described earlier species: *Ricania albizona* SPINOLA, 1839, *R. lugens* STAL, 1855 and *R. zonata* STAL, 1855. All of these species are distributed in southern Africa. The species presently described is distributed in central and northern parts of Africa.

MATERIAL AND METHODS

Measurements and abbreviations

The following measurements were made and abbreviations used in this study:
Total length – measured (in dorsal view) from anterior margin of vertex to apex of tegmina;
A/B – width of vertex measured at the anterior margin/length of vertex measured in mid line;
C/E – width of frons at upper margin/length of frons in mid line;
D/E – maximum width of frons/length of frons in mid line;
F/B – length of pronotum in mid line/length of vertex in mid line;

G/B+F – length of mesonotum/cumulative length of vertex and pronotum in mid line;

G/H – length of mesonotum in mid line/width of mesonotum between lateral angles;

I/J – length of tegmen measured from the base to the apical margin in median portion/width of tegmen measured from apex of clavus to the anterior margin.

PREPARATIONS AND ILLUSTRATION

The abdomens of the specimens examined were cut and boiled in 10% KOH with a few drops of black chlorazol for dyeing the ectodermic genital ducts based on the method introduced by CARAYON (1969) and BOURGOIN (1993). Dissections and cleaning of genital structures were performed in distilled water. Final observations and drawings were done in glycerine using a camera lucida attached to Olympus SZH10 and BX50 microscopes. The photos were taken using microscope Leica MZ 16, with digital camera IC 3D; images were produced using the software Synoptics Automontage®. The nomenclature of the male genitalia follows BOURGOIN (1998) and BOURGOIN & HUANG (1990), and for the female genitalia BOURGOIN (1993).

MATERIAL

The material studied comes from the institutions listed below (names of the curators of the collection in parentheses):

BMNH – The Natural History Museum, London (M. WEBB);

IRSNB – Royal Belgian Institute of Natural Sciences, Brussels, Belgium (J. CONSTANT);

MRAC – Royal Museum of Central Africa, Tervuren, Belgium (Dr U. DALL'ASTA).

TAXONOMY

Mulvia trialbofasciata n. sp.

ETYMOLOGY

Specific epithet refers to the pattern of coloration of the tegmina – with three transverse, white bands.

DIAGNOSIS

Mulvia trialbofasciata n. sp. is similar to *Mulvia albizona* SPINOLA, 1839 but differs by the coloration of the tegmina (three white bands in *M. trialbofasciata*, only 2 in *M. albizona*) and by the male genital block structure (apex of lower periandrium strongly elongate dorsally and strongly curved ventrad in *M. albizona* and smooth in *M. trialbofasciata*; base of periandrium in lateral dorsal part with elongated and narrow lobe, in *M. trialbofasciata* without lobes).



1-2. *Mulvia trialbofasciata* n. sp.: 1 – habitus, lateral view; 2 – anterior part of body, frontal view

DESCRIPTION

Total length 0.54–0.78 cm.

Head. Head with compound eyes (in dorsal view) about as wide as thorax.

Vertex transverse, distinctly wider than long in mid line; proportion $A/B = 9.16\text{--}12.2$; all margins well carinate; anterior margin arcuate; lateral margins almost straight or very weakly arcuate; posterior margin arcuate with stronger curvature than anterior one; median carina absent, disc of vertex flat; all margins about same level. Vertex, pronotum and mesonotum covered by the short and light hairs.

Frons at upper margin wider than long in mid line, proportion $C/E = 1.34\text{--}1.50$, widest at median portion, at about level of ocelli, proportion $D/E = 1.52\text{--}1.65$; upper margin almost straight, lateral margins slightly arcuate, partly almost straight, not incised near the level of ocelli, in lower part slightly curved to frontoclypeal suture; frontal disc rugose vertically and covered by long hair (longer than on the rest of head); median carina reaching almost to frontoclypeal suture, lateral carinae separated at base; almost parallel to lateral margins; at apex curved to median carina at level of transverse ridge, but not connected with median; transverse ridge narrow and elevated (carina-like), disc of frons below ridge strongly concave (fig. 1).

Antennal segment II (pedicel) weakly elongate wider at apex, with microsetae and a few plate organs present only on the upper part.

Compound eyes with very small callus at lower margin. Lateral ocelli present.

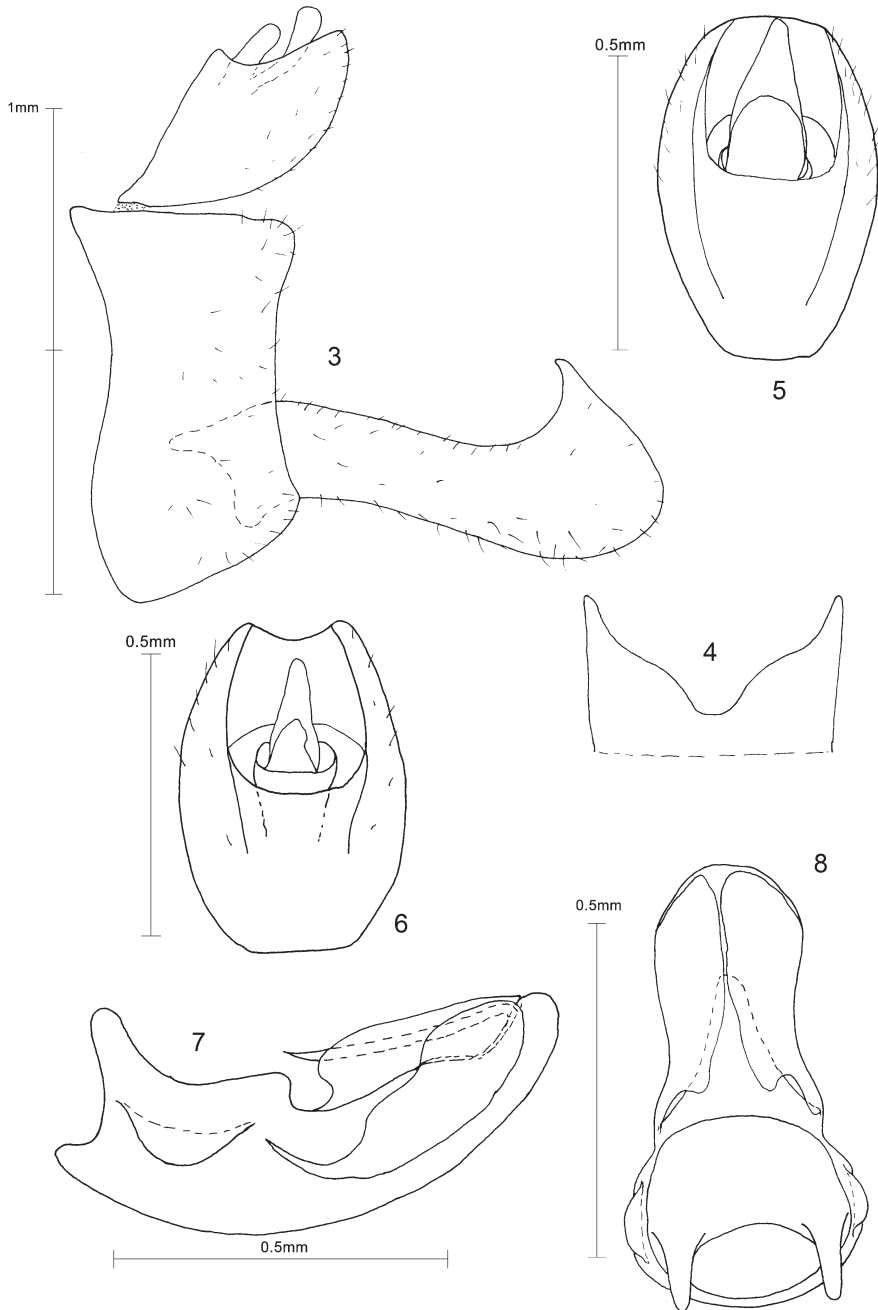
Rostrum surpassing mid coxae; apical segment distinctly shorter than subapical one.

Frontoclypeal suture arcuate. Clypeus without median carina (fig. 1).

Thorax. Pronotum distinctly longer in mid line than vertex, proportion $F/B = 2.33\text{--}3.60$; anterior margin distinctly convex, posterior margin almost straight or weakly concave; median carina and two impressions on disc present, disc of vertex flat; posterior margin more elevated than anterior one.

Mesonotum diamond-like, distinctly longer than cumulative length of vertex and pronotum in mid line, proportion $G/F+B = 3.41\text{--}4.52$, proportion $G/H = 0.78\text{--}0.98$; lateral angles placed before half of length of mesonotum in mid line; median carina distinct; lateral carinae connected at base with median one and reaching to posterior margin; anterolateral carinae connected with lateral a little after the lateral angles of mesonotum; in some specimens lateral and anterolateral carinae partly melted; median portion of mesonotum irregularly wrinkled.

Tegmen (fig. 2) membranaceous, flat and elongately-rounded, proportion $I/J = 1.19\text{--}1.43$; anterior margin weakly convex; posterior margin weakly arcuate, apical and claval angles broadly rounded, costal area with dense and numerous transverse veinlets, in median portion about as wide as costal cell; costal cell without transverse veinlets; longitudinal veins almost straight; Sc+RA and RP leaving basal cell from one point; branches MA_{1+2} and MA_{3+4} leaving basal cell separately but in some specimens these branches are very closed or partly fused at base (look like very short stem), MA_{1+2} fork distinctly distad than MA_{3+4} fork (on the left tegmen of female from P.N.U both forks are about at same level); CuA forking always after the MA_{3+4} fork, median portion of tegmen with group of irregularly placed transverse veinlets; posterior part of



3-8. *Mulvia trialbofasciata* n. sp., male: 3 – genital capsule, lateral view, 4 – ventral part of pygofer, ventral view; 5-6 anal tube, dorsal view; 7 – aedeagus, lateral view; 8 – periandrium, dorsal view

tegmen with distinctly visible apical and subapical lines of transverse veinlets, apical and subapical cells long and narrow; apical cell shorter than subapical one; clavus with straight and single veinlets between CuP – Pcu and Pcu+A₁ – CuP.

Wings with distinctly visible, elongately-triangular precostal cell; longitudinal veins almost straight; 2 transverse veinlets: *r-m* and *m-cu* present, CuA vein multi-branched.

Anterior and middle femur subrectangular with flattened lower part (in cross section), all tibiae square in cross section; anterior femur about as long as tibia; middle femur little shorter than tibia; hind femur shorter than tibia, hind tibia partly flattened, especially in distad part, and widened at apical part; hind tibia with 2 lateral spines in distal part and row of apical teeth forming arcuate line; basitarsomere distinctly longer than cumulative length of second and hind tarsomere, with interrupted row of 4 small teeth in formula 3+1, lateral teeth biggest; median part with ovoid pad covered by long hairs

Male (figs. 3-8). Anal tube (in lateral view, fig. 3) elongate, distinctly surpassing pygofer; base of anal tube narrow; lower margin distinctly regularly arcuate with breaking point and maximum height at about middle, posterior angle sharp and distinctly visible; anus placed a little after half of length.

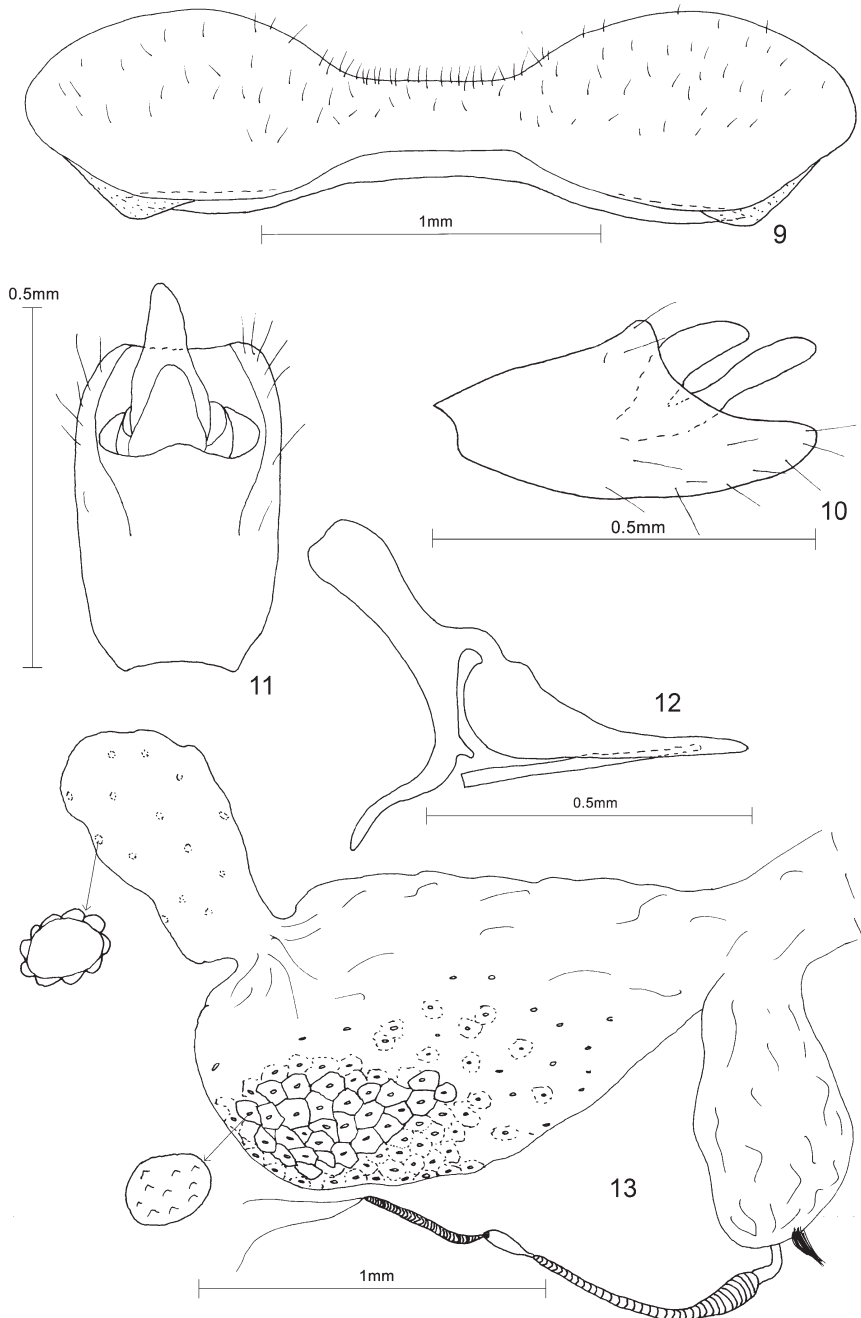
Anal tube (in dorsal view, figs. 5-6) distinctly elongate, basal part about as broad as posterior one; anterior margins almost straight, lateral margins slightly arcuate with breaking point about middle; anus placed after half of length; posterior margin straight (in one specimen from Lamto), in all other concave.

Pygofer (in lateral view, fig. 3) higher than wide; upper margin almost straight and almost perpendicular to posterior one; dorsal posterior angle distinctly visible and broadly rounded, posterior margin almost straight. Posterior margin (in ventral view) in median portion V-shaped (fig. 4)

Genital styles (in lateral view, fig. 3), distinctly longer than wide and bearing distinct spine-like process at the end of dorsal margin; lower and upper margin almost straight and parallel; hind margin in caudo-dorsal angle widely rounded and not surpassing the posterior margin of process.

Phallic complex. Periandrium (figs. 7-8) with long lateral split reaching to half of its length (extremely weakly visible and partly fused); dorsal part of periandrium distinctly shorter than lower one, reaching to 2/3 of length, basal part distinctly elevated, posterior part membranaceous and triangular in dorsal view; dorsal periandrium with long membranaceous lobe; lateral basal part with wide and distinctly visible fold; lower margin of periandrium smooth, apex of ventral periandrium slightly oriented dorsally, and distinctly extending apex of dorsal one; posterior margin not cut and without additional structures; apical and lateral parts of lower part of periandrium without spineferous microsculpture.

Aedeagus s.l. Aedeagus (fig. 7) without lateral spinose process; posterior lateral lobe of aedeagus oriented basad, single and membranaceous, with irregular but smooth margins, base of lobe wide, apex of lobe “process like” well sclerotized, narrow and sharp; surface smooth; apex of aedeagus with strongly sclerotized single, long and almost straight dorsal process oriented basad and reaching half of length of periandrium.



9-15. *Mulvia trialbofasciata* n. sp., male: 9 – pregenital sternit, flattened; 10 – anal tube, lateral view; 11 – anal tube, dorsal view; 12 – gonospiculum, lateral view; 13 – ectodermic genital structures, lateral view (sclerites not in scale)

Female (figs. 9-13). Pregenital sternite with elongate and well developed lateral lobes; median portion of anterior and posterior margins straight.

Anal tube (in lateral view, fig. 10) elongated, a little surpassing the posterior margin of IX tergite; lower margin arcuate, posterior part tapering apicad, with blunt rounded apex; anus placed after half of length.

Anal tube (in dorsal view, fig. 11) elongated and rectangular, basal part almost as with as posterior one, basal margin weakly concave, posterior margin in median portion almost straight or weakly concave; lateral margin almost straight, anus placed distinctly after the half of length

Gonoplac unilobate, laterally flattened, posterior margin thickened, without teeth, placed about 45° in respect to longitudinal axis of the body, posterior ventral part partly membranaceous.

Gonophysis VIII partly laterally flattened at dorsal part shallowly concave with sharp apex and well visible teeth placed at the posterior-dorsal margin.

Gonospiculum as in fig. 12.

Bursa copulatrix (fig. 13) with widely connected two pouches; first pouch distinctly wider than second, wall of first pouch with weakly visible cells and sclerotized ornamentation (small area bearing by 7–10 small vertically placed petals), cells most placed at lower part of pouch, second pouch membranaceous, placed dorsal posterior part of first pouch, without cells with weakly visible pore surrounded by 10 petals. placed almost vertically.

Spermatheca (fig. 13) well developed; *ductus receptaculi* very long and wrinkled, to ¼ of length widened; *diverticulum ductus* distinctly shorter than *ductus receptaculi* with narrow membranaceous and elongated bulba.

Coloration (figs. 1-2). Head and thorax brown, legs yellowish, abdomen brown with yellowish genital capsule. Tegmina brown, with 3 white transverse bands; wing hyaline with 2 brown transverse bands, very narrow near the posterior margin and much broader in ¾ of wing length.

TYPE MATERIAL

Holotype, : [Côte d'Ivoire loc. Lamto date 30.01.69 D. Duviard réc.], [sp 16] – (♂, BMNH);

Paratypes 5 ♂♂, 4 ♀♀: **Côte d'Ivoire**: [Lamto (Toumodi) Côte d'Ivoire L39f 4/12/62], [R.I.Sc.N.B. I.G. 22.889], [H. Synave det., 1963 *Mulvia albizona* Germ] – (♂, IRSNB); [Côte d'Ivoire loc. Lamto date 30.01.69 D. Duviard réc.], [sp 16] – (♂, BMNH); Côte d'Ivoire loc. Lamto date 30.01.69 D. Duviard réc.] – (♂, BMNH); **Democratic Republic of Congo**: [Congo Belge, P.N.G. Miss H. De Saeger, Mt Tungu (S), 9-vi-52 H. De Saeger. 3606] – (♀, MRAC); [Congo Belge, P.N.G. Miss H. De Saeger, Iso III, 11-vi-1952 H. De Saeger. 3612] – (♀, MRAC); [Congo Belge: P.N.G. Mabwe (r. E. lac Upemba) (585 m.) 12-19-I-1949 Mis G.F. de Wite. 2214a] – (♀, MRAC); **Ghana**: [Ghana, 7739d leg. J. Prószyński 1963] – (♂, MIIZ); **Tanzania**: [Tanzania Karagwe: Kitengule 1300m 8.i.1995 ABjørnstad 41569 ex J Kielland], [Mulvia sp. Jérôme Constant det. 2008], [Coll. I.R.Sc.N.B. Exchanged with A. Bjørnstad I.G.: 31:230] – (♀,

IRSNB); **Uganda**: [Uganda P.E.S.Whalley B.M. 1961-343] – (♂, BMNH); **Sudan**: [Sudan Blue Nile: Ingessena Mts. 18–22.XI.62 Linnavuori], [Ricania 5-fasciata St.] – (♂, BMNH).

NOTE

LINNAVUORI (1973) recorded several specimens of *Ricania quinquefasciata* STÅL, 1866 from the two localities in Sudan. I examined one specimen from original series determined by LINNAVUORI as *R. quinquefasciata* STÅL, 1866 which belongs to new species. I think that the rest of specimens (not examined by me) also belongs to the new species described above.

DISTRIBUTION

Africa (Ivory Coast, Ghana, Democratic Republic of Congo, Sudan, Tanzania, Uganda).

ACKNOWLEDGMENTS

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