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A new genus and species, *Brixiola perinetana* gen. et sp. nov., of planthoppers (Hemiptera: Fulgoromorpha: Cixiidae) from Madagascar

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Abstract. A new genus from Madagascar, *Brixiola* Walczak, Gębicki & Taszakowski gen. nov., with its type species *Brixiola perinetana* Walczak, Gębicki & Taszakowski sp. nov. are described and placed in the tribe Brixiini (Hemiptera: Fulgoromorpha: Cixiidae). In its external structure, the new taxon is most similar to species of the genus *Brixia* Stål. Photographs of the adult, illustrations of male genitalia and SEM micrographs of the morphological characters of new species are also provided.

Key words. new genus, new species, planthoppers, Brixiini, taxonomy, Madagascar.

INTRODUCTION

The planthopper family Cixiidae Spinola, 1839 (Hemiptera: Fulgoromorpha) comprises 16 extant tribes (Spinola 1839; Holzinger et al. 2002; Szwedo 2004; Bourgoin 2023). Four of them (i.e., Andini Emeljanov, 2002, Brixidiini Emeljanov, 2002, Brixiini Emeljanov, 2002, and Bennini Metcalf, 1938) probably form a genetically close and morphologically similar group (Metcalf 1938; Emeljanov 2002; Ceotto et al. 2008). These tribes, except for the Brixiini, comprise only a few genera and species characterized by forewings held steeply tectiform in repose.

The tribe Brixiini comprises nine genera inhabiting the southern part of the Eastern Hemisphere. The type genus *Brixia* Stål, 1856, which is the largest genus in the Brixiini comprising about 120 species (Stål 1856; Emeljanov 2002), has the broadest range, including the Oriental and Afrotropical regions (Bourgoin 2023) and also the Australasian region, with two known species from Papua New Guinea (Walker 1870). The other genera, with fewer species, show a significant degree of endemism. The richest region in terms of the number of endemics is the Australasian region with the genera *Innobindus* Jacobi, 1928 (seven species), *Solonaima* Kirkaldy, 1906 (15 species), *Undarana* Hoch & Howarth, 1989 (six species), and *Ithma* Fennah, 1969 (three species) (Kirkaldy 1906; Jacobi 1928; Fennah 1969; Hoch & Howarth 1989; Erbe & Hoch 2004; Löcker et al. 2007). A single genus, *Melandeva* Distant, 1906, with two species is known from the Oriental region (Distant 1906; Emeljanov 2007) and there are three genera in the Afrotropical region, namely *Caffrocixius* Fennah, 1967 (six species), *Cibrica* Emeljanov, 2007 (four species), and the monotypic genus *Typhlobrixia* Synave, 1953 (Synave 1952, 1953, 1969; Paulian 1953; Fennah 1967; Van Stalle 1984, 1987; Emeljanov 2007; Soulier-Perkins et al. 2015).

Adults of the tribe Brixiini feed on various plant species, but they are probably not restricted to a specific host plant. Nymphs live underground and feed on the underground parts of plants, like most species of the Cixiidae family; a fact that may explain the tendency to form numerous cavernicolous species (about 30 within the family Cixiidae). These troglobionts feed on the roots of epigeic plants in the subterranean zone of tropical caves, which were formed mainly in sedimentary rocks, and include *Typhlobrixia namorokensis* Synave, 1953 from Madagascar, *Brixia briali* Hoch & Bonfils, 2003 from Réunion,

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plus six species of the genus *Solonaima* and two species of *Undarana*, which are Australasian endemics (Kirkaldy 1906; Synave 1953; Hoch & Howarth 1989; Hoch et al. 2003; Löcker et al. 2007).

In Madagascar there are 40 Brixiini taxa: 39 representatives of the genus *Brixia* described so far (Signoret 1860; Jacobi 1917; Lallemand & Synave 1954; Synave 1956, 1965, 1979; Bourgoin 2023) and one endemic troglobiont *Typhlobrixia namorokensis* (Synave 1952, 1953; Paulian 1953; Soulier-Perkins et al. 2015). Species of the genus *Brixia* known from Madagascar constitute a large group, but the information about them is fragmentary. The majority of species were reported from the northeastern areas and the eastern coast of the island, also including the areas near the capital city, Antananarivo. Almost all Madagascan species of the genus *Brixia* are endemics (Signoret 1860; Stål 1866; Jacobi 1917; Lallemand & Synave 1954; Synave 1956, 1965, 1979), except for *Brixia krameri* Synave, 1979, which also occurs in Seychelles (Holzinger et al. 2008). *Brixia* species are usually medium-sized, which in Madagascar reach sizes between 5–10 mm in length, and contrastingly coloured. Adult *Brixia* specimens are usually observed from September to March (Lallemand & Synave 1954; Synave 1956, 1965). Information about host plants of *Brixia* species found in Madagascar is lacking. The representatives of this genus that occur in nearby Mascarene islands feed on a wide range of plant species belonging to at least 17 genera of 14 families of Magnoliophyta (Williams 1975; Bonfils et al. 1994; Attié et al. 2002, 2005, 2008). Thus, it can be assumed that the trophic preferences of the species of *Brixia* from Madagascar may be similar to those from Mascarene islands.

Here we described a new cixiid taxa, *Brixiola perinetana* gen. et sp. nov. from Madagascar based on a male collected in Perinet. We owe the description of this new genus and species to Henri Synave (1921–1980) – a Belgian entomologist who described 55 species of the genus *Brixia* Stål, which is closely related to the genus *Brixiola* gen. nov., and over 300 other planthopper species and 25 genera. The label attached by Synave drew our attention and directly helped us to prepare the present study. Synave considered the specimen to belong to the genus *Brixia*.

MATERIALS AND METHODS

Morphological features of the specimen were imaged using a Leica M205C stereo microscope with a Leica LED5000 HDI (high diffuse dome illuminator), a Leica DFC495 digital camera, and the Leica application suite ver. 4.9.0 software. SEM pictures were obtained using Phenom XL field emission scanning electron microscope with a Back-Scatter Detector (BSD). The panoramic image stitcher Image Composite Editor ver. 3.0 and graphic editor Adobe® Photoshop CS6 were used to prepare the figures. The specimen was only cleaned with a brush because other methods, e.g., washing or dehydration, may damage the individual. Next, the specimen was mounted on aluminium stubs (an insect pin was inserted into a piece of the sponge glued to the stub). In the next stage, the specimen was covered with an anti-static spray. The measurements were taken with the Leica application suite ver. 4.9.0 software. The abdomen was boiled three times (about 10 minutes) in a 10% solution of potassium hydroxide (KOH) according to Knight's method (Knight 1965). The genitalia were detached from the abdomen after boiling. The specific parts of the genital structures were separated from the abdomen using thin forceps and a needle blade. Next, these structures were placed in glycerine. The genitalia were studied and drawn with the Nikon Ni-U light microscope with a camera lucida.

The morphological terminology of the head, thorax and legs follows Holzinger et al. (2003) and Ceotto & Bourgoin (2008), for male genitalia it follows Bourgoin (1987), and the terminology of venation of fore- and hindwings follows Anufriev & Emeljanov (1988) and Bourgoin et al. (2015). The terminology and classification of sensilla follow Bourgoin & Deiss (1994), Holzinger et al. (2002), Romani et al. (2009), and Wang et al. (2018).

In the description of the type labels, the contents of each label are enclosed within double quotation marks (" "), the individual lines of data are separated by a double forward slash (//), and the author's comments are between square brackets ([]).

RESULTS

Brixiola Walczak, Gębicki & Taszakowski gen. nov.
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(Figs 1–4)
Type species: *Brixiola perinetana* Walczak, Gębicki & Taszakowski gen. et sp. nov.

Diagnosis

Apical part of the head elongated and very narrow, its width slightly smaller than width of compound eye. Frons widest much above the median ocellus and considerably tapering towards the frontoclypeal suture. Lateral carinae in the apical part of the head located very close to each other, but not fused. Narrower (apical) part of the frons concave, delimited by two transverse carinae in the upper apical area of the head. Antenna base located above posterior margin of compound eyes. Semicircular scapus four times shorter than cylindrical pedicellus. Median ocellus located at the distance slightly greater than its diameter from the arcuated frontoclypeal suture. Lateral margins of frons and clypeus clearly intended in the

area of frontoclypeal suture (these margins do not form one uniform arcuate line). Outer edge of metatibia with a row of small spines. Apex of metatibia with a rim of spines including two long lateral and two short middle spines. Apex of metatarsomere I with one long and three short spines; apex of metatarsomere II with one long and two short spines. The basal concavity of costal margin of tegmen absent. In forewings, ScP considerably delimited the posterior margin of lanceolate pterostigma. Length of common stem of ScP+R+M almost equal to the length of basal cell. Vein R separating in a total of seven branches: RA branches into RA_1 and RA_2 and RP branches into RP_1 – RP_5. There are five MP branches, initially fused in a common stem MP, which forks into MP_{1+2}, MP_3 and MP_{4+5} branches. CuA_1 arched opposite to MP_{4+5}. In the hindwings r-m connected with M at the point where MP separating from M. The length of the common vein Cu almost equal to the length of basal cell (bc). The section of the inner edge located between the apex of clavus and the end of oblique vein icu strongly shortened. Slender periandrium with broad basal crest-like appendage and four long apical spines. Flagellum in the ventral view with a short apical spine and a row of small spines and in the lateral view with three broad short teeth and long basal spine. Apex of parameres pallete-shaped extended. Apical lobes of anal tube narrow and curved downwards.

Description

Head. Head including eyes narrower than pronotum. Vertex trapezoidal, approximately two times wider than long, deeply indented in the middle, lateral carinae merged and connected by short arcuate carina. At apex of vertex short groove. Width of basal part of vertex slightly smaller than width of compound eye (in dorsal view) (Fig. 1B). Frons strongly expanded, its lower part distinctly wider than compound eye, oval-shaped. Lateral carinae weakly concave. Apical part of head marginated with two short transverse and separated carinae. Transverse subapical carina interrupted in the middle and strongly arched. Apical carina (separating frons from vertex) oblique. These carinae delimited a small area of irregular shape located in the apical part of the head between vertex and frons. Frontoclypeal suture weakly visible, concave, arched, its convexity directed towards median ocellus. Postclypeus slightly shorter than frons. Anteclypeus at least three times shorter than postclypeus. Both with distinct median carina, reaching about half of the length of postclypeus. Lateral margins of frons and clypeus (in lateral view) considerably intended in the area of frontoclypeal suture (they do not form one uniform arcuate line). Rostrum long, its tip exceeds the line between coxae III (hind coxae) (Figs 1A, 2A). Median

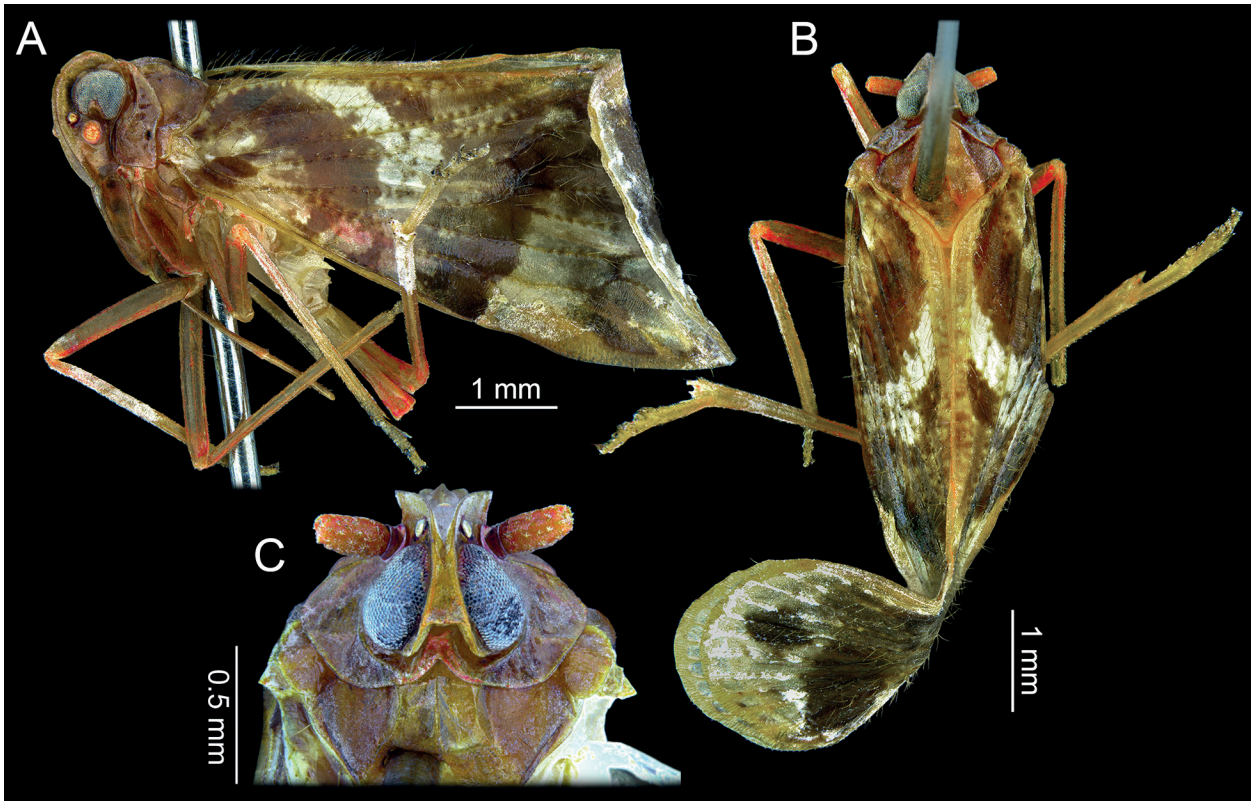

Fig. 1. *Brixiola perinetana* gen. et sp. nov., Walczak, Gębicki & Taszakowski. **A**. Habitus, lateral view. **B**. Habitus, dorsal view. **C**. Vertex and pronotum, dorso-anterior view.

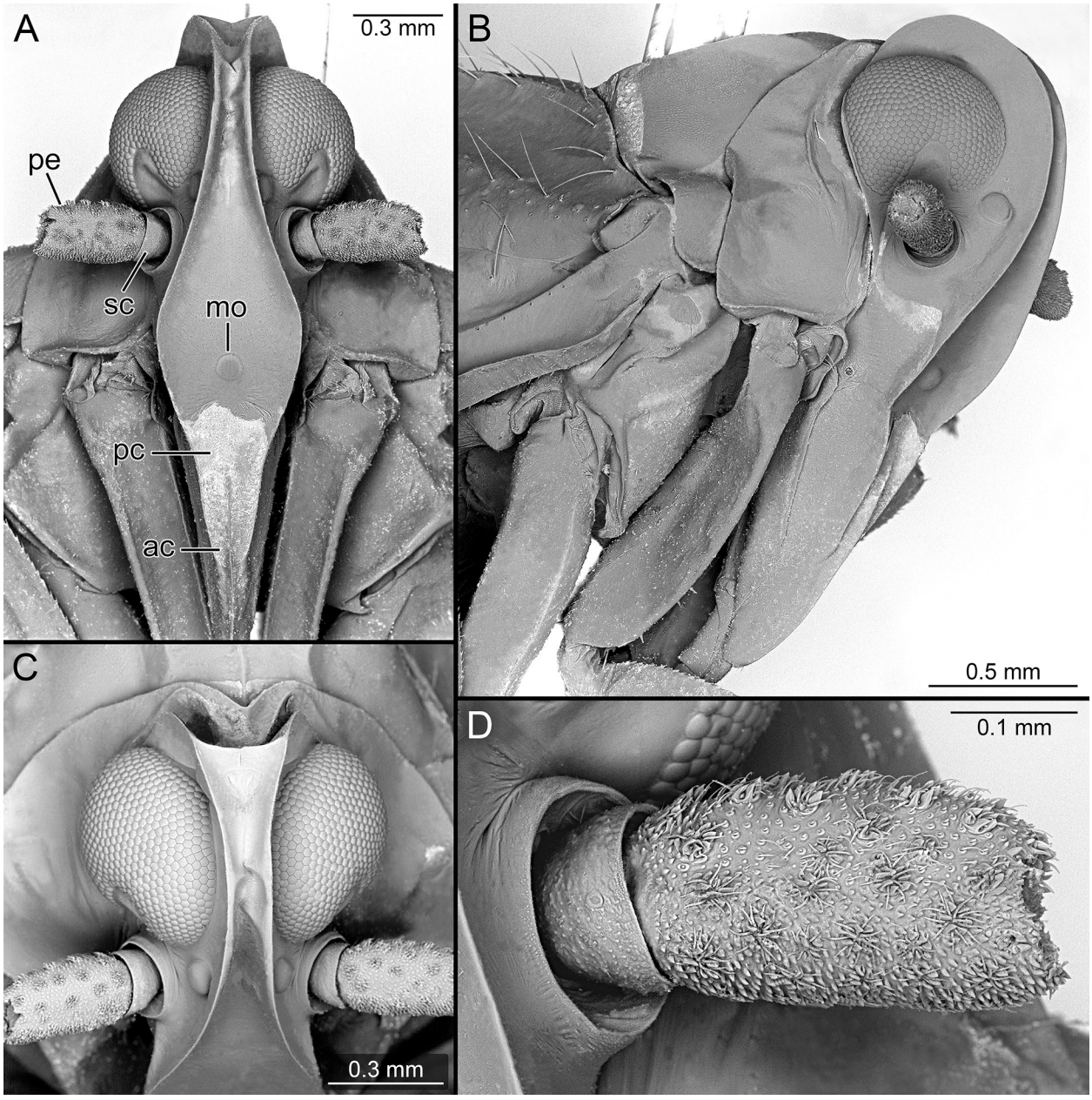

Fig. 2. *Brixiola perinetana* gen. et sp. nov., Walczak, Gębicki & Taszakowski, SEM detail of morphology. **A**. Head, frontal view. **B**. Head, lateral view. **C**. Vertex and pronotum, anterodorsal view. **D**. Antenna, lateral view. Abbreviations: ac = anteclypeus; mo = median ocelli; pc = postclypeus; pe = pedicellus; sc = scapus.

ocellus distinct, located at the distance slightly greater than its diameter from the arcuated frontoclypeal suture. Lateral carina regularly rounded (Fig. 2A). Above ocelli, near margin of the compound eye, two sockets of sensory organs (Fig. 3C). On gena above the arcuate genal groove, near the hind margin of head, sensory organ with complex structure (Fig. 3B). Cylindrical pedicellus four times longer than semicircular scapus, about twice longer than wide. Antennae embedded in deep cavities highly fringed with cuticular collar (Fig. 2D). Surface of pedicellus (beside narrow basal part) covered with sensory plate organs (Figs 2D, 3A). Centrally located, slightly convex sensory plate covered on the inner side with single ones, and on outside most often by long, curved and tapered processes clustered in pairs. The ventral side of pedicellus covered densely with cuticular processes (also occurring within plate organs). Single sensilla trichoidea (short and straight) are scattered between them. Dorsal side of pedicellus with cuticular microtubercles (much larger than on ventral side) almost exclusively within sensory plate organs. Between plate organs, numerous sensilla trichoidea (long and curved) (Fig. 2D).

Table 1. Comparison of the *Brixiola* gen. nov. and the genus *Brixia.*

Feature	***Brixiola* gen. nov.**	***Brixia***
apical part of the frons (Figs 2A–C)	elongate and concave; median suture absent	flat; short median suture present
basal concavity of forewing costal margin (Fig. 3F)	absent	present
RP veins on forewing (Fig. 3F)	five RP veins, RP_3 and RP_4 connected in the basal part	three to five RP veins, the last two connected in the basal part
apex of metatibia	with seven spines, including two lateral, longest and two median, shortest spines	with six spines, the outer longest, and two median, the shortest spines
periandrium (Figs 4A–B)	with a large ventral crest without spines	without the ventral crest or with ventral crest with spines
flagellum (Figs 4A–B)	with an elongated spine, row of small spines, three short lateral teeth and one apical teeth	only with long spines
apical lobes of anal segment (Figs 4E–F)	narrow and curved downwards	broad and not curved downwards

Thorax. Pronotum very short, with broad paranotal lobes and posterior margin intended in right angles (Figs 1B–C, 2C). Mesonotum with three longitudinal carinae including median carina reaching the base of scutellum (Fig. 1C).

Legs. Fore legs: procoxa elongated, about three times longer than wide, slightly concave on ventral site, with long, arcuate groove. Profemur 1.6 times longer than procoxa, slightly concave on the lateral side, the inner side with median ridge armoured with small denticles. Lower margin with very small spines. Protibia about 1.4 times longer than profemur (Fig. 1A). Middle legs: mesocoxa elongated and widest in basal part with a straight groove on the lateral side. Mesofemur short about 1.4 times shorter than coxa. Mesotibia rectangular in cross-section, about three times longer than mesofemur with margins densely covered with small spines. Second tarsomere shortest. Hind legs: metacoxa robust with spines. Outer margin of metatibia with a row of small spines. Apex of metatibia with a rim of seven spines including two long lateral spines (the inner spine is slightly shorter than outer one), three short median spines connected to each other and two medium-sized spines on inner surface of apex of tibia. The apex of metatarsomere I with one long and three short spines; apex of metatarsomere II with one long and two short spines. All tarsomeres equal in length (Fig. 1A).

Wings. Forewing strongly expanded in the anterior part. Basal and middle band reaching the costal margin of clavus where they are widest. The basal concavity of costal margin of tegmen absent. The common stem of ScP+R+M almost as long as basal cell. RA forks into RA_1 and RA_2. Long stem RP forks behind pterostigma into single RP_1, RP_2, bifurcated RP_{3+4} and RP_5. MP forks into MP_1 and MP_2, although short stem MP_{3+4+5} forks into single MP_3 and forked MP_4 and MP_5 (according to the venation pattern: $MP_{1+2,}$ MP_3 and MP_{4+5}). CuA distinctly bent doubly arched. The length of oblique vein icu not greater than that of transverse veins. Forking of CuA_2 and icu located slightly above the apex of clavus. The section of inner edge between apex of clavus and end of oblique vein icu strongly shortened. Most apical cells are the same size and shape and slightly longer than corresponding subapical cells (Figs 3D–E). Hind wing. Costal margin of hind wings slightly arched. Nodus elongated and narrow, located approximately in the middle of the wing length. Forkss of RP_1 and RP_2 reaching the anterior margin of nodus (before the apex of nodus). Relatively long vein r-m connected with M at the point where MP separating from M. Common stem of MP and CuA_1 elongated and slightly shorter than r-m. The length of the common vein Cu (at the base of the wing) almost equal to the length of basal cell (bc) (Figs 3F–G).

Male genital structure. Aedeagus relatively long and narrow with roundish ventral crest (Fig. 4A). The dorsal edge of periandrium almost straight (without crest), basal lobe directly connected with the anal segment (Fig. 4F). In frontal part of periandrium, a pair of elongated spines with combined bases. First one long, reaching the base of periandrium, second one bent backward in the middle of its length. On both sides of the apical part of the periandrium, one single straight spine (Figs 4A–B). Flagellum in the ventral view with a short apical spine and a row of small spines and in the lateral view with three broad short teeth and long basal spine. Parameres with long stems and obliquely placed apical lobes (Fig. 4C). Anal segment with large anal style. Apical lobes of anal tube narrow and curved downwards (Figs 4D–E).

Remarks. In its external structure, including the male genitalia, *Brixiola* gen. nov. is similar to many representatives of the tribe Brixiini and even Brixidiini. *Brixiola* gen. nov. is distinguished by elongated, laterally flattened

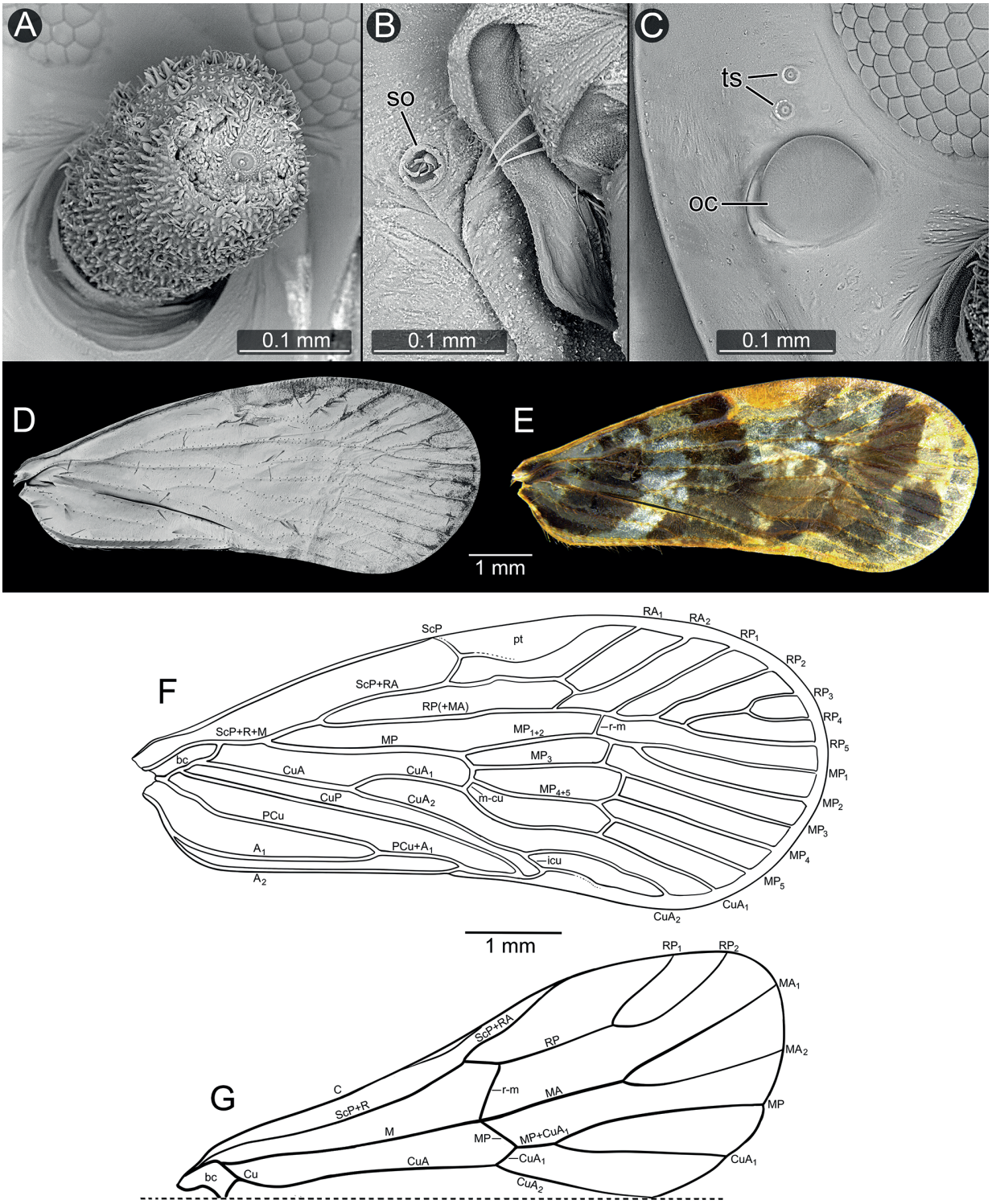

Fig. 3. *Brixiola perinetana* gen. et sp. nov., Walczak, Gębicki & Taszakowski, SEM detail of morphology. **A**. The apical part of the pedicel, top view (flagellum on both antennae broken off). **B**. Sensory organ with a complex structure on gene. **C**. Two sockets of sensory organs above ocelli. **D**. Forewing. **E**. Forewing, photo in colour. **F**. Forewing, drawing. **G**. Hindwing, drawing (visible part). Abbreviations: A = Anal vein (A_1–A_2); bc = basal cell; C = Costa vein; Cu = Cubitus vein; CuA = Cubitus anterior vein (CuA_1–CuA_2); CuP = Cubitus posterior vein; icu, m-cu and r-m = transverse venation; M = Media vein; MA = Media anterior vein; MP = Media posterior vein (MP_1–MP_5); oc = ocelli; PCu = Postcubitus vein; pt = pterostigma; Sc = Subcosta vein; ScP = Subcosta posterior vein; R = Radius vein (R_1–R_2); RA = Radius anterior vein (RA_1–RA_2); RP = Radius posterior vein (RP_1–RP_5); so = sensory organ with complex structure; ts = two sockets of sensory organs.

vertex and a narrow apical part of frons framed with high lateral carinae, which differs it from Australian endemics that possess a much shorter head. The width of the vertex (at its base) clearly exceeds its height in the genus *Innobindus*, while in *Solonaima* the vertex is at least three times and in *Undarana* even six times wider than its height (Kirkaldy 1906; Jacobi 1928; Hoch & Howarth 1989).

African species of the genus *Caffrocixius* are clearly distinguished from other genera of the tribe Brixiini, by wide and flattened frons lacking high lateral carinae, whereas *Typhlobrixia* is characterised by the reduction of compound eyes and hypogeic habitat (Synave 1953; Fennah 1967; Van Stalle 1987). The oriental genus *Melandeva* is characterised by different morphological features, including a mesonotum with five carinae (there are three carinae in *Brixiola* gen. nov.) and forewings with increased number (7) of MP branches (the first forking of MP is its division into $MP_{1+2+3+4}$ and MP_{5+6+7} branches) (Distant 1906; Emeljanov 2007). Representatives of the genera *Caffrocixius* and *Solonaima* possess a similarly characteristic structure of the mesonotum (Kirkaldy 1906; Fennah 1967; Van Stalle 1987). The genus *Cibrica* is unique by its forewing venation pattern, with MP forking into MP_{1+2+3} and MP_{4+5} branches (MP_{1+2} and MP_3 and MP_{4+5} in *Brixiola* gen. nov.). The head morphology in the genus *Brixiola* gen. nov. is similar to the genera *Cibrica* and *Brixidia* Haglund, 1899 (Haglund 1899; Holzinger et al. 2002; Emeljanov 2007). These three genera possess a narrow and laterally flattened head with deeply concave vertex surrounded by raised ridges and frons framed with foliate lateral carinae not merging in the middle of the apical part of frons. The genus *Brixidia* is identified by apical cells of tegmina considerably longer than subapical cells and CuA and icu (long and oblique) forking clearly above the apex of the clavus. Species of the genus *Brixia* may be identified by the presence of lateral carinae fused in the apical part of frons and forming of the short median groove between them. The apical part of the head formed this way has a different length in species of the genus *Brixia* (Williams 1975).

Small basal concavity of the basal part of the costal margin of tegmina has been indicated as a characteristic feature of the genus *Brixia* (Ceotto & Bourgoin 2008), but it is also present in other representatives of Cixiini, i.e., *Borbonomyndus* Attié, Bourgoin & Bonfils, 2002 assigned to the tribe Oecleini Muir, 1922 and *Eucarpia* Walker, 1857 assigned to the tribe Eucarpiini Emeljanov, 2002 (Walker 1857; Muir 1922; Attié et al. 2002; Emeljanov 2002; Holzinger et al. 2002; Tsaur & Hsu 2003; Löcker et al. 2010). Therefore, this feature cannot be considered as characteristic of the genus *Brixia*. Basal concavity is absent in *Brixiola* gen. nov.

In the hindwings, characteristic connection of r-m with M at the point where MP separating from M is present also in the representatives of genera *Pintalia* Stål (Pintallini), *Andes* Stål (Andini) and *Brixidia* (Brixidiini) of subfamily Cixiinae and *Bothriocera* Burmeister of subfamily Bothriocerinae (Emeljanov 2002). In many representatives of these genera there is a vestigial section of M at the point where r-m is connected to M vein (e.g., in *Pintalia* and *Brixidia*).

The characteristic feature of *Brixiola* gen. nov. is the presence of arched RP_1 and RP_2 reaching the costal margin. Both RP_1 and RP_2 reach apical or distal margin of the hindwing in most representatives of the Cixiinae. In *Brixidia* the venation pattern is similar to that in *Brixiola* gen. nov. with characteristic pattern of radial veins (very short RP_1 is connected with anterior wing margin, while straight RP_2 is connected with apical wing margin). The poor condition of the holotype makes it impossible to describe all features of the hindwings, especially their apical and jugal parts.

The genus *Brixiola* gen. nov. is the most morphologically similar to the genus *Brixia* (including Madagascan species). The features that distinguish these genera are summarized in Table 1.

Brixiola perinetana Walczak, Gębicki & Taszakowski gen. et sp. nov.

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(Figs 1–4)

Diagnosis

See generic diagnosis.

Description. Medium-sized species. Measurements of morphological structures are presented in table 1. Vertex trapezoidal. Frontal and lateral carinae do not merge at the top of the head. Frons without spots. Head uniformly dark-yellow. Labrum uniformly light-yellow. Pedicellus dark-yellow. Pronotum uniformly dark-brown, mesonotum with dark sides and the light central disc between lateral carinae, margins darker. Legs pale with dark-yellow, in some places, pink ridges (Figs 1A–B). Wing background hyaline with three brown bands and apical spots. In the forewing, costal margin, pterostigma and inner margin of clavus yellow. Ends of longitudinal veins yellow. The colour pattern of the wing irregularly spotted (Figs 1A, 3E). Between MP_{1+2} and MP_{3+4+5} round, brown spot. The vicinity of basal cell dark-brown. Longitudinal veins with yellowish setae embedded on pale tubercles. On light forewing background, three brown bands and one apical round spot. Hindwing milky-white with dark-brown longitudinal veins (Figs 1A–B, 3E). Sternites paler at the base, with a light-orange middle part and red margins. Ventral crest of periandrium round. Periandrium with four spines, flagellum with one long spine (Figs 4A–B).

Measurements. BODY: total length (with forewings): 8.41. HEAD: Frontal part length (including vertex + frons + clypeus): 2.32, frons length in midline: 1.13, frons total

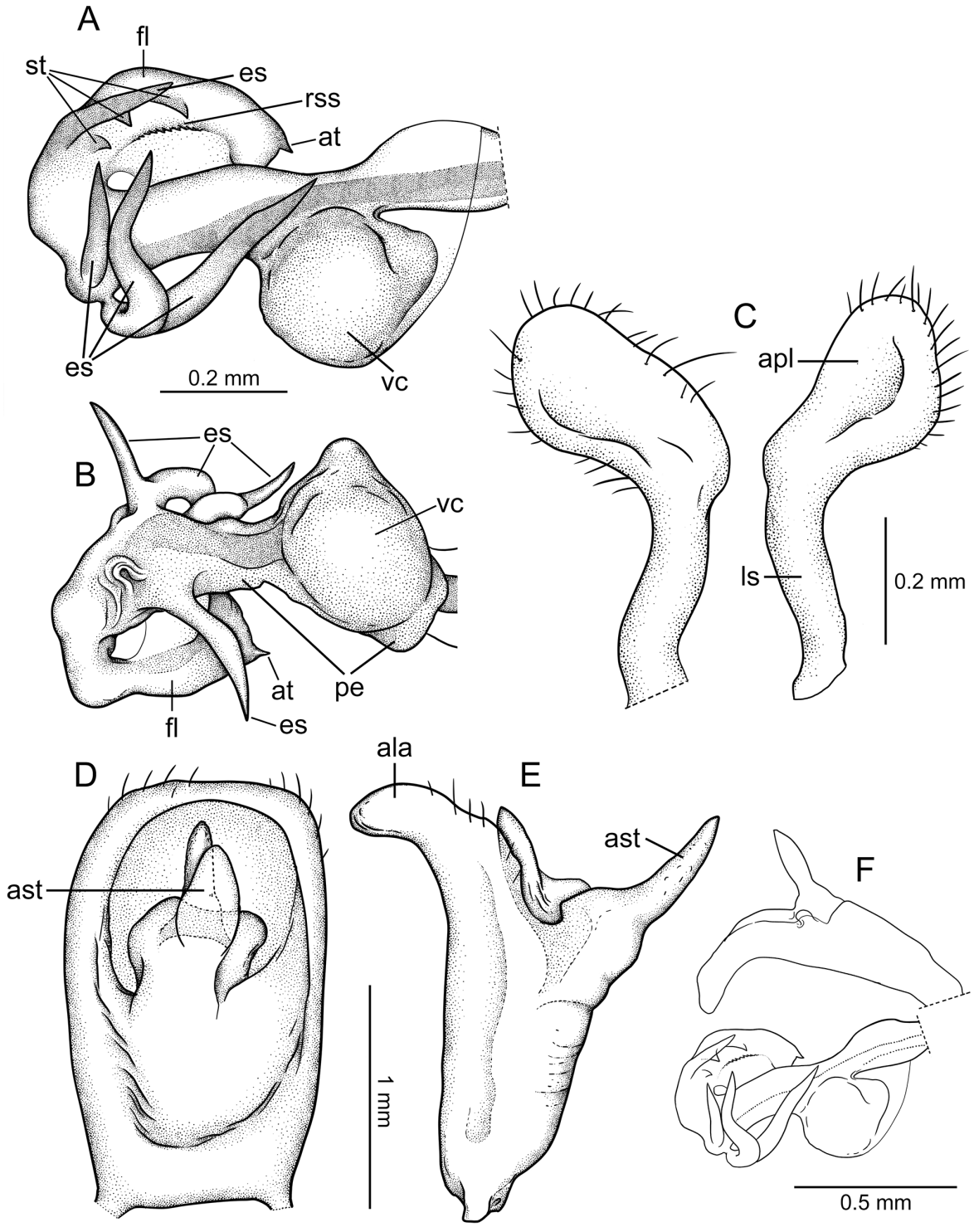

Fig. 4. Brixiola perinetana gen. et sp. nov., Walczak, Gębicki & Taszakowski, male genitalia. A. Aedeagus, side view. B. Aedeagus, ventral view. C. Styles, frontal view. D. Anal segment, dorsal view. E. Anal segment, side view. F. Laying of the anal segment with the aedeagus before preparation. Abbreviations: ala = apical lobe of anal segment; apl = apical lobes of paramere; at = apical teeth; es = elongated spines; fl = flagellum; ls = long stem; ast = anal style; pe = periandrium; rss = row of small spines; vc =, ventral crest of periandrium.

length: 1.41, frons width: 0.50, interocular distance 0.85, vertex in midline: 0.32, vertex total length: 0.39, vertex width: 0.27, eye maximum width: 0.58, clypeus maximum length in midline: 1.07, clypeus maximum width: 0.36, pedicel length: 0.37, pedicel width: 0.21. PRONOTUM: length in midline: 0.09, total length: 1.47, width: 1.76. MESONOTUM: length in midline: 1.29, width (without tegulae): 1.36. HIND LEG: femur: 1.37, tibia: 3.38, tarsus: 1.59, tarsomere: I: 1.01, tarsomere II: 0.61, tarsomere III: 0.44. FOREWING: length: 7.35, width: 3.05.

Distribution. Madagascar; species known from one locality in the eastern part of the island.

Material examined. *Holotype*, 1♂: "Holotype // *Brixiola perinetana* // gen. *et* sp. nov. // Walczak, Gębicki & Taszakowski / det. 2022" [red label] [bold font]; "MADAGASCAR Tam. // Perinet // 28.IX.58 F. Keiser" [bright pinkish label]; "Licht- // fang" [bluish-greenish label]; "♂" [dirty white label]; "H. Synave det. 1964 [64 is hand-written] // *Brixia* nov. sp." [handwritten] [dirty white label]. Examined material is deposited in the collection of the Naturhistorisches Museum, Basel, Switzerland (NHMB).

Ecology. Unknown.

Etymology. The name refers to Perinet, the place where the specimens were collected. Perinet is situated about 60 km from Antananarivo (Eastern Madagascar, near Moramanga in the vicinity of the Andasibe-Mantadia National Park).

Remarks. *Brixiola perinetana* gen. et sp. nov. is similar in body colouration to some representatives of the genus *Brixia*, especially to *Brixia trifasciata* Synave, 1956. *Brixiola perinetana* gen. et sp. nov. differs from *B. trifasciata* in having clearly uniform pale face, dark brown pronotum and a different arrangement of three fuscous stripes on the forewings (Synave 1956). *Brixiola perinetana* gen. et sp. nov. possesses two thicker anterior stripes, and one of them adheres directly to the pterostigma. The third stripe is only partially developed (reaching only MP) and is located on the apical area of the forewing. *Brixiola perinetana* gen. et sp. nov. differs from the similar species *Brixia pullomaculata* Lallemand & Synave, 1954 in having a considerably narrower and straight third stripe not reaching the apex of the forewing and the presence of a fuscous apical spot (Lallemand & Synave 1954).

Key to the African genera of the tribe Brixinii Stål, 1856

The present identification key to the African genera of the tribe Brixinii is based on external morphological characters.

1. Compound eyes reduced, frontal ocellus absent, lateral ocelli partly reduced (diminished). Tegminae with ScP and R forming a common basal stem (ScP+R); MP arises directly from basal cell ..... ***Typhlobrixia*** Synave, 1953

– Compound eyes well developed (spherical). Three ocelli present. Tegminae with ScP, R and MP arising from basal cell as a common stem (ScP+R+MP) ... 2

2. Head broad, posterior part the same width as compound eye (in dorsal view), the length of its dorsal part about equal to the width (at the base of the head). Lateral carinae of vertex and frons not foliate, frons flat and broad, elliptical; long median groove reaching median ocellus. Mesonotum with five carinae (pair of submedian carinae significantly shorter than lateral pair) ..... ***Caffrocixius*** Fennah, 1967

– Head narrow and slightly elongated, considerably narrower than compound eye (in dorsal view), the length of its dorsal part greater than width (at the base of the head), carinae at least partly foliate. Frons elongated, significantly narrower in its apical part, more or less concave. Median groove absent or present only in the narrowest upper part of head. Mesonotum with three carinae (submedian carinae absent) 3

3. Lateral carinae in the apex of head completely fused, forming narrow interocular part. Median groove of frons short, not reaching median ocellus ***Brixia*** Stål, 1856

– Lateral carinae of the frontal part of head broad, not fused. Frons elongatelly concave. Median groove of frons absent 4

4. Vein MP forking into MP_{1+2} and $MP_{3+4+5.}$ Hind tibiae with short spines..... ***Brixiola*** gen. nov.

– Vein MP forking into MP_{1+2+3} and $MP_{4+5.}$ Hind tibiae without short spines..... ***Cibrica*** Emeljanov, 2007

DISCUSSION

Comparative studies on the morphology of species of the tribe Brixiini, especially the species of the genus *Brixia*, have not been conducted so far. The large genus *Brixia* exhibits a remarkable morphological diversity. The descriptions of species of the genus *Brixia* are often not precise, especially those in the old publications. The designation of groups within *Brixia* is based almost entirely on colouration, particularly wing colouration, which makes it difficult, and in many cases impossible, to confirm or correct the descriptions of many species. The genus *Brixia* needs a thorough revision, and we would not be surprised that after a comprehensive study of the Madagascan taxa, some species currently in *Brixia* are moved to *Brixiola* gen. nov. Considering the literature data, it seems possible that the Madagascan species *Brixia pullomaculata* Synave, 1956 belongs to *Brixiola* gen. nov., evidenced by the morphology of the frontal part of the head (Synave 1956).

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