

Paurocephala famendongoe sp. n. (Hemiptera: Psyllidae), Insect Pest of *Psorospermum febrifugum* (Hypericaceae) from Adamawa-Cameroon

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To cite this article:

Louis Djakbe Dayang, Victor Joly Dzokou, Joseph Lebel Tamesse. *Paurocephala famendongoe* sp. n. (Hemiptera: Psyllidae), Insect Pest of *Psorospermum febrifugum* (Hypericaceae) from Adamawa-Cameroon. *American Journal of Zoology*. Vol. 6, No. 1, 2023, pp. 1-8.
doi: 10.11648/j.ajz.20230601.11

Received: January 1, 2023; Accepted: January 30, 2023; Published: February 28, 2023

Abstract: A new psyllid species collected on *Psorospermum febrifugum* (Hypericaceae) is described from Adamawa Region of Cameroon, *Paurocephala famendongoe* sp. n. It's different morphologically with the previous described species of the same genus by the following characters: paramere with 11 stout setae in basal half posterior; male proctiger very enlarged in the basal third and bearing in its apical internal part located toward rear a large and very long seta; forewing without surface spinules in all cells. Antenna of fifth instar larvae without sectasetae, rather presence only of long simple setae; first flagellum very long with 9 long simple setae grouped in 3, 2, 1 and 1; dorsal sclerites covered by truncated setae grouped in pairs at the level of lateral margins of abdomen; caudal plate without process. Previously, *Paurocephala nkomekui* was described from Cameroon on *Agelaea hirsuta* (Coronaceae). Root, leaves and barks of *Psorospermum febrifugum* are used in African traditional medicine to fight against fever, malaria, sore, eczema, cutaneous eruption and insect bite. Damages on host plant are rolling of leaves and leaves discoloration.

Keywords: *Paurocephala famendongoe* sp. n., Psyllid Pest, *Psorospermum febrifugum*, Hypericaceae, Adamawa-Cameroon

1. Introduction

Psyllids (Hemiptera: Psylloidea) are phloem-feeding insects generally highly host specific on woody dicotyledonous plants and display their largest species diversity in the tropics [1, 2]. Most of the known psyllids species in the world are oligophagous being restricted to one or a few closely related hosts plants, particularly in their immature stages [3, 4]. Many species of psyllids have been described from Cameroon. These are *Ricinodendron heudolotti* psyllid, *Diclidophlebia xuani* Messi 1998 [5]; nine new species of the family Phacopterionidae [6]; *Caloncoba welwitschii* psyllid, *Trioza messii* Dzokou 2009 [7]; *Zanthozylon gillettii* psyllid, *Pseudophacopteron burckhardtii* [8]; *Ficus lepriouri* psyllid, *Pseudoeriosylla etoundii* [9];

Beilschmiedia obscura psyllid, *Trioza kala* [10]; *Grewia venusta* psyllid, *Diclidophlebia andjigae* [11]; *Ficus platyphylla* psyllid, *Pseudoeriosylla bitomi* [12]; *Agelaea hirsuta* psyllid, *Paurocephala nkomekui* [13]; *Ficus platyphylla* psyllid, *Pseudoeriosylla mpoamei* [14]; nine new species of the family Psyllidae-Ciriacreminae [15]; three new species of the family Homotomidae [16]; two new species of *Cacopsylla* genus [17]. From Adamawa Region of Cameroon, 14 species of Psyllidae family were recorded for the first times [18].

Paurocephala Crawford 1914 [19] genus belongs to Paurocephalinae subfamily and to Psyllidae family which have five genera: *Aphorma* Hodkinson, *Camarotoscena* Haupt, *Diclidophlebia* Crawford, *Livia* Latreille, *Paurocephala* Crawford and *Syntomoza* Enderlein [20]. Keys for the identification of adults and fifth instar larvae are

provided by Burckhardt and Mifsud [21]. *Paurocephala* genus has been revised by Mifsud and Burckhardt [22] who recognised 51 species, and one species has been added by Navasero and Calilung [23]. *Paurocephala* is restricted to the Old World and is most diverse in the Oriental region (43 spp.) with some Afrotropical species. *Paurocephala* is an Old World genus with nine Afrotropical and 42 Indo-Australian described species [22]. Host records include: Moraceae, Urticaceae, Ulmaceae (all Urticales), Malvaceae, Sterculiaceae (all Malvales) and Clusiaceae (Theales) [22]. Known host plants of *Paurocephala* spp. belong to the Malviflorae with the exception of the Afrotropical *P. insolita* which develops on Theiflorae (Theales, Clusiaceae) [22]. The Afrotropical species are monophyletic and, together with one Oriental species constitute the *gossypii*-group. *Paurocephala nkomekui*, psyllid of *Agelaea hirsuta* has been described from Cameroon [13]. This study will permit to enrich the biodiversity of described species from Cameroon.

2. Materials and Methods

Type locality: University Campus of Ngaoundere, 7°25'09, 8''N; 13°32'42,4''E; 1085 m

Type material: Holotype: ♂, University Campus of Ngaoundere, 16 July 2011. Paratype: University Campus of Ngaoundere: 21♀, 26♂, 5 larvae, same date as holotype; 61♀, 51♂, 28 July 2011; 15♀, 25♂, 04 August 2011; 32♀, 60♂, 13 August 2011; 25♀, 35♂, 20 August 2011; 20♀, 29♂, 20 December 2011; 10♀, 01♂, 27 December 2011; 09♀, 06♂, 02 January 2012; 14♀, 04♂, 02 April 2012; 27♀, 22♂, 13 August 2012; 08♀, 03♂, 20 December 2012; 13♀, 06♂, 01 September 2012; Beka Hossere: 4♀, 3♂, 7°20'19,9''N; 13°33'31,4''E; 1111 m, 10 July 2015; Dang: 17♀, 11♂, 23 July 2011; 26♀, 12♂, 11 August 2011; 05♀, 05♂, 24 December 2011; 20♀, 16♂, 2larvae, 31 March 2012; 04♀, 05♂, 05 April 2012; 46♀, 46♂, 18 August 2012; 39♀, 34♂, 2larvae, 22 December 2012, 7°24'42,4''N; 13°32'42,4''E; 1077 m; Falaise Wack: 8♀, 10♂, 7°33'05,3''N; 13°33'23,2''E; 1375 m, 7 August 2014; Mbizoro: 16♀, 10♂, 28 July 2011; 46♀, 27♂, 16 August 2011; 10♀, 12♂, 1larva, 29 March 2012; 35♀, 28♂, 04 April 2012; 28♀, 17♂, 1larva, 18 August 2012; 13♀, 09♂, 1larva, 04 September 2012; 12♀, 05♂, 20 December 2012, 7°24'25,7''N; 13°32'55,4''E; 1069 m; Meiganga: 5♀, 1♂, 1larva, 7°30'57,7''N; 14°17'29,7''E; 981 m, 3 July 2015; Nganha: 2♀, 1♂, 7°19'03,9''N; 13°43'12,1''E; 1075 m, 9 July 2015; Ngaoundal: 8♀, 5♂, 6°27'40,6''N; 13°16'21,4''E; 951 m, 7 July 2015; Nyambaka: 6♀, 2♂, 6°53'38,4''N; 14°05'35,5''E; 1158 m, 10 July 2015; Tchabal: 128♀, 120♂, 2 larvae, 21 July 2011; 58♀, 71♂, 2 larvae, 9 August 2011; 30♀, 18♂, 1larva, 22 December 2011; 12♀, 1♂, 01 January 2012; 07♀, 04♂, 03 April 2012; 35♀, 39♂, 25 August 2012; 09♀, 06♂, 03 September 2012; 20♀, 18♂, 24 December 2012, 7°32'45,9''N; 13°33'49,0''E; 1365 m; Tignere: 03♀, 7°22'21,6''N; 12°39'86,3''E; 1131 m, 30 June 2015.

Type series deposit: The type series of *Paurocephala famendongoeis* sp. n. (figure 1C) were deposited in the

collections of the Laboratory of Zoology, Higher Teacher's Training College, University of Yaounde I, Cameroon (LZUY).

Field survey: The observations and survey took place in 11 localities of the Adamawa Region, Cameroon, from July 2011 to July 2015. During each survey, host plants were inspected. Adults of psyllid were captured with a mouth aspirator. Nymphs were sampled directly from buds and leaves of the host plant.

Observations and illustrations: The specimens are preserved dry and slide-mounted or in 70% ethanol and are deposited in Laboratory of Zoology, University of Yaoundé I. The morphology was illustrated using transmission Leica microscope and measurements were made from slide-mounted using Leica stereomicroscope.

Terminologies: The terminologies used for the description follow the identification keys of Mifsud and Burckhardt [22] and Burckhardt and Mifsud [21].

3. Results

3.1. Description of *Paurocephala famendongoeis* sp. n.

Adult Coloration: Brown to brown dark (figure 1B-C). Head light brown compound eyes. Antenna yellow excepted segments 9 and 10 light brown. Thorax, dorsal and ventral sclerites as well as genitalia light brown. Femora and tibia light yellow with tarsus yellow. Forewing punctuated by light brown spots on almost middle parts, (veins R+M+Cu₁, R, R_s and Cu₁); apices of veins punctuated with light brown spots.

Structure. Head (figure 2A) less broad than body width, head width 0.72-0.88 mm in males and 0.72-0.92 mm in females, slightly less than body width 0.88-1.2 mm in males and 0.92-1.28 mm in females. Head without genal cone. Vertex sub-rectangular with posterior margins bear tubercles, vertex surface covered with very small and inconspicuous scattered setae; lateral ocelli located at base of tubercles; vertex with one fovea on each side of the median suture in posterior part.

Antenna (figure 2B) shorter than width body, AL/HW: 0.83-0.90 in males and 0.86-0.94 in females. Antenna 10 segmented with a single subapical rhinarium on each segment 4, 6, 8 and 9; segment 10 bearing two terminal setae moderately long of which one longer simple and one less longer and truncated. The third antennal segment 0.12 mm long in both sexes is very long than others segments. The others antennal segments have almost equal length. Antenna bearing simple medium setae on segments 1, 2, 3, 4, 6 and 9. Antenna measurements are 0.6-0.8 mm long in males and 0.68-0.8 mm long in females. Thorax is curved at the level of mesoscutum; metascutellum and metapostnotum have a small and broad horn at the base.

Forewing (figure 2C) are 2.18 times longer than width in males and 2.17 times longer than width in females. Veins not bearing conspicuous setae, surface spinules absent in all cells; vein R_s slightly curved with apex pointed towards fore margin,

vein R_s bearing about 20 not conspicuous setae; pterostigma slightly narrower and longer than Cu_1 cell; veins R and $M+Cu_1$ have equal length; vein M_{1+2} longer than M_{3+4} ; m_1 and r_2 cells have sub-equal dimension; vein C+Sc margins and whole part after costal break bearing small simple setae very conspicuous in fairly large number. Forewing measurements are 2.0-2.4 mm long, 0.80-1.12 mm width in males and 1.8-2.4 mm long, about 1.0-1.12 mm width in females.

Hindwing (figure 2D) is transparent and shorter than forewing, venation almost absent, costal and subcostal veins with 3 setae before costal break and 3 grouped 4+3+2 costal setae after costal break. Hindwing measurements are 1.6-2.0 mm long, 0.56-0.8 mm width in males and 1.6-2.0 mm long, 0.64-0.8 mm width in females; hindwing are 2.71 times longer than width in males and 2.70 times longer than width in females.

Metacoxa (figure 2E) with long meracanthus, laterally straight, rounded apically. Metatibia (figure. 2F) length measures 0.6-0.8 mm in both sexes, it longer than metafemora, thin, without basal spines, weakly widening apically, bearing an incomplete crown of 5 unsclerotized apical spurs. Metabasitarsus without black spurs.

Male genitalia (figure 2G) with proctiger (figure 2H) simple, roughly pyramidal trunk-shaped with fairly broad base and apex less broad, obliquely truncated, anterior margin straight bearing very long setae in upper part, posterior margin rounded bearing very long simple setae in three quarters of its upper part, apex bearing small simple setae on its margin and median. Proctiger bearing in its apical inner surface located towards rear a large and very long setae. Proctiger measurements are 0.20-0.28 mm long, 0.83 times longer than head width. Paramere (figure 2I) lamellar, bottle-shaped, enlarged in more than three quarter basal, narrowed in apical quarter; it bearing very long simple setae long posterior margin and in its apical half, apex bearing small, dense setae; inner face with 11 stout setae in basal half posterior. Paramere measurements are 0.16-0.28 mm; 0.24 times longer than head width. Aedeagus (figure 2J) 3-segmented, distal portion short with oblong apical dilatation; medial portion very short, slightly incurved in the apical part; sclerotised end tube of ductus ejaculatorius short and enlarged in the basal part. Distal segment of aedeagus measurements are 0.16-0.24 mm long, 0.22-0.27 times longer than head width.

Female genitalia (figure 2K) elongate with pointed apex, dorsal valvula expanded, and inner valvula shorter than ventral valvula in profile view. Female proctiger (figure 2L) pear-shaped or quince-shaped, narrowed in the apical part,

constricted at the terminal two thirds covering with very long simple setae; terminal margin sub-rounded bearing small setae; basal part very enlarged. Proctiger measurements are 0.60-0.80 mm, 0.48 times longer than head width and 1.89 times longer than the subgenital plate. Subgenital plate (figure 2K) shorter than proctiger, pointed apically, bearing long setae at the apical part. Subgenital plate measurements are 0.32-0.42 mm long. Circumanal ring oval and ballooned in the middle in the dorsal view, circumanal with two rows of pores surrounded by long, simple setae. Measurements and ratios are found in table 1.

3.2. Fifth Instar Larvae (Figures 1A, 3A-E)

Coloration: Whitish to dark yellow; dark spots in dorsal portion of head, thorax, dorsal sclerite and margins of wing pad; last antenna segments and femora dark yellow. Compound eyes orange. The rest of body is whitish.

Structure: Body flattened dorso-ventrally (figure 3A), it is 3 times as long as wide.

Antenna (figure 3B) short; 3-segmented, the first two segments short without setae, segment 3 very long with 9 long simple setae grouped in 3, 2, 1 and 1; segment 3 bearing two terminal setae of which one longer simple and one shorter truncated lanceolate; segment 3 with four rhinaria on the suture of future flagellum apices. Antenna measurements are 0.45- 0.54 mm long. Forewing pad (figure 3C) with four truncate lanceolate setae marginally. Forewing pad measurements are about 0.27 mm width. Dorsal sclerites covered by truncate setae grouped in pairs at the level of lateral margins of abdomen. Anus terminal (figure 3C), circumanal ring distorted oval consisting of two row of pores, inner and outer distinct ring composed by row of elongate pores placed side by side. Circumanal covered with long simple setae and two truncate lanceolate setae encrusted in internal margin. Tarsal arolium (figure 3E) triangular and petiolate, expanded basally, fan-shaped. Caudal plate without process, ending margin rounded. Fifth larval stage measurements are 1.63-2.45 mm long and 0.54-0.81 mm width. Measurements are found in table 2.

Host plant (figure 1D): *Psorospermum febrifugum* (Hyperaceae) widespread from Senegal to Cameroon and tropical Africa [24]. Root, leaves and barks are used in African traditional medicine to fight again fever, malaria, sore, eczema, cutaneous eruption and insect bite [25]. *Paurocephala famendongoeis* sp. n. provokes on its host plant rolling of leaves and leaves discolouration.

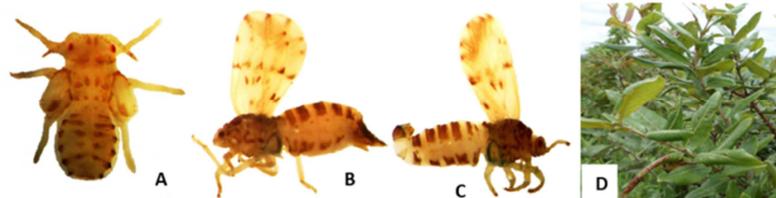


Figure 1. *Paurocephala famendongoeis* sp. n. and host plant, A: Fifth instar larvae (x40), B: female adult (x25), C: male adult (x25), D: *Psorospermum febrifugum* (Hypericaceae).

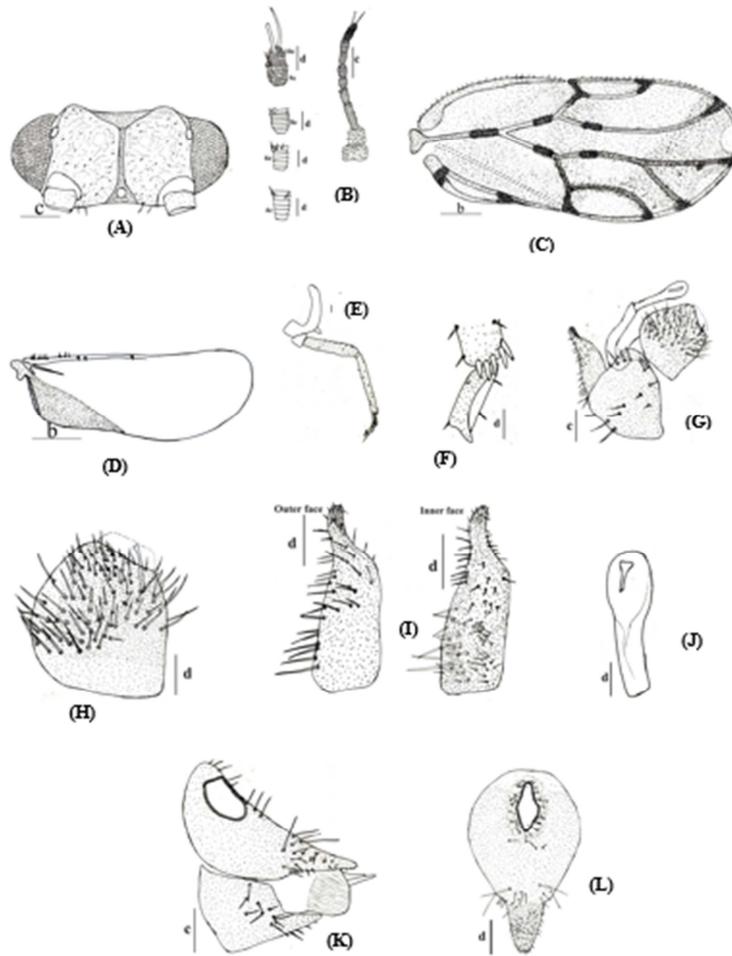


Figure 2. Adult organs of *Paurocephala famendongoensis* sp. n. (A) head; (B) antenna; (C) forewing; (D) hindwing; (E) metathoracic leg; (F) metatibia apical end; (G) male genitalia; (H) male proctiger; (I) paramere; (J) aedeagus; (K) female genitalia; (L) female proctiger. Scales: a=2 mm; b=0.8 mm; c=0.4 mm; d=0.2 mm.

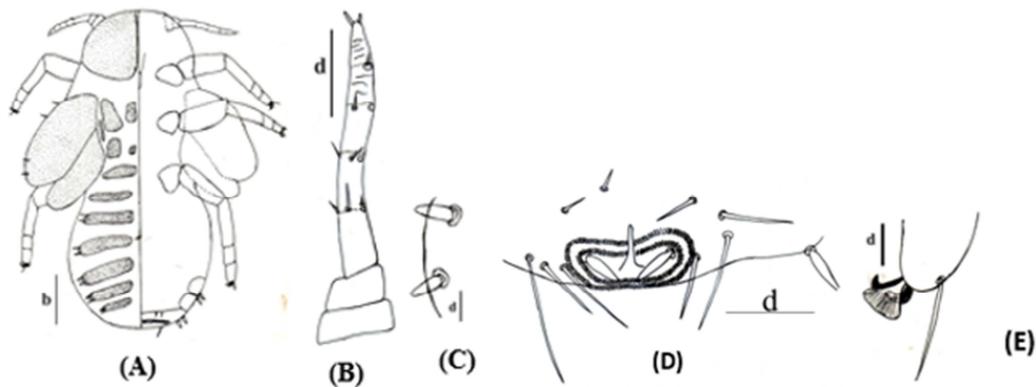


Figure 3. Fifth larval stage organs of *Paurocephala famendongoensis* sp. n. (A) fifth larval stage, left dorsal view, right ventral view; (B) antenna; (C) forewing pad; (D) caudal plate, ventral view; (E) tarsal arolium. Scales: b=0.8 mm; d=0.2 mm.

Table 1. Measurements (mm) and ratios of *Paurocephala famendongoensis* sp. n. (N= number of measured specimens).

Parameters	Males				Females			
	N	Min	Max	Average	N	Min	Max	Average
BL	40	2.0	3.6	2.87	40	2.4	3.6	3.07
BW	40	0.88	1.2	1.0	40	0.92	1.28	1.06
HW	40	0.72	0.88	0.81	40	0.72	0.92	0.81
AL	40	0.6	0.8	0.7	40	0.68	0.8	0.71
F ₁ L	40	0.12	0.12	0.12	40	0.12	0.12	0.12

Parameters	Males				Females			
	N	Min	Max	Average	N	Min	Max	Average
WL	40	2.0	2.4	2.18	40	1.8	2.4	2.26
WW	40	0.8	1.12	1.00	40	1.0	1.12	1.04
wL	40	1.6	2.0	1.90	40	1.6	2.0	1.95
wW	40	0.56	0.8	0.7	40	0.64	0.8	0.72
MTL	40	0.6	0.8	0.68	40	0.6	0.8	0.66
MFL	40	0.48	0.6	0.57	40	0.48	0.64	0.56
MPL	40	0.2	0.28	0.22	/	/	/	/
PL	40	0.16	0.28	0.20	/	/	/	/
FPL	/	/	/	/	40	0.6	0.8	0.74
PSPL	/	/	/	/	40	0.32	0.48	0.39
DAL	40	0.16	0.24	0.21	/	/	/	/
BL/HW	40	2.77	4.09	3.54	40	3.33	3.91	3.79
BL/BW	40	2.27	3.0	2.87	40	2.60	2.81	2.89
AL/HW	40	0.83	0.90	0.86	40	0.94	0.86	0.87
F ₁ /HW	40	0.16	0.13	0.14	40	0.16	0.13	0.14
AL/F ₁	40	5.0	6.66	5.83	40	5.66	6.66	5.91
WL/HW	40	2.77	2.72	2.69	40	2.5	2.60	2.79
WL/WW	40	2.5	2.14	2.18	40	1.8	2.14	2.17
WL/wL	40	2.85	2.5	2.71	40	2.5	2.5	2.70
MTL/HW	40	0.83	0.90	0.83	40	0.83	0.86	0.81
PL/HW	40	0.17	0.25	0.21	/	/	/	/
FPL/FSPL	/	/	/	/	40	1.87	1.66	1.89
LR	40	0.68	0.8	0.79	40	0.6	0.88	0.77
LM+Cu ₁	40	0.68	0.8	0.79	40	0.6	0.88	0.77
LM ₁₊₂	40	0.8	1.2	1.02	40	1.0	1.4	1.17
LM ₃₊₄	40	0.6	0.92	0.75	40	0.72	1.0	0.80
LPt	40	0.8	1.2	1.08	40	1.0	1.4	1.15
m ₁	40	0.6	1.0	0.80	40	0.8	1.0	0.86

Legend: BL, body length; BW, body width; HW, head width; AL, antenna length; F₁L, length of first antennal flagellomere; WL, forewing length; WW, forewing width; wL, hindwing length; wW, hindwing width; MTL, metatibial length; MFL, metafemur length; MPL, male proctiger length; PL, paramere length; DAL, length of distal segment of aedeagus; FPL, female proctiger length; FSPL, female subgenital plate length; LR, R vein length of forewing; LM₁₊₂, LM₁₊₂ vein length of forewing; LM₃₊₄, M₃₊₄ vein length of forewing; LPt, pterostigma length; m₁, m₁ cell length of forewing.

Table 2. Measurements (mm) and ratio of fifth instar larva of *Paurocephala famendongoe* sp. n. (N= number of measured specimens).

Parameters	N	Minimum	Maximum	Average
BL	15	1.63	2.45	1.90
BW	15	0.54	0.81	0.66
AL	15	0.45	0.54	0.51
MTL	15	0.27	0.27	0.27
WL	15	0.54	0.69	0.62

Legend: BL, body length; BW, body width; AL, antenna length; WL, forewing-pad length; MTL, metatibia length.

Etymology: Dedicated to the Minister of State, Minister of Higher Education of Cameroon, Professor Jacques FAME NDONGO, for its scientific rigour.

4. Discussion

Paurocephala famendongoe sp. n. of *Porospermum febrifugum* has same host plant as *Paurocephala insolita* described in 1971 in Angola by Mifsud & Burckhardt [26], they are only species dependent on non Malvaceae hosts plants. *Paurocephala famendongoe* sp. n., psyllid of *Porospermum febrifugum* differs to others species belonging to the *gossypii* type which includes all the nine Afrotropical species (*P. abutili*, *P. boxi*, *P. gossypii*, *P. hollisi*, *P. insolita*, *P. lucida*, *P. medleri*, *P. sinuata* and *P. urenae*) and one Oriental species *P. lienhardi* [22]. Adults of *Paurocephala famendongoe* sp. n., has forewing yellow with veins dark

yellow punctuated by light brown spots on almost middle parts (veins R+M+Cu₁, R, R_S and Cu₁), apices of veins punctuated with light brown spots. Thus, forewing is punctuated by 14 dark brown spots on all veins, excluding vein C+Sc; forewing with 20 inconspicuous setae on R_S vein. It differs from *P. insolita* [22] with forewing whitish, pterostigma brown basally and apically; forewing with 12-16 inconspicuous setae on R_S vein; surface spinules present in all cells; forewing punctuated by 12 spots on all veins, excluding veins C+Sc, M and R_S. Segment 9 of antenna of *Paurocephala famendongoe* sp. n. bearing a single long simple seta, absent in *P. insolita* [22]. Segment 10 bearing two terminal setae unequal length of which one longer simple and one shorter and truncated, while the two setae are simple

and long in *P. insolita* [22].

Metacoxa in *Paurocephala famendongoe* sp. n. with long meracanthus, laterally straight, rounded apically. It differs in *P. insolita* [22] and *P. sinuate* [22, 13] with short meracanthus, almost straight laterally, rounded apically. And it's also differs in *P. nkomekui* [13] with long meracanthus rounded apically; the metatibia apical spurs are arranged 3+3.

Male proctiger in *Paurocephala famendongoe* sp. n., very enlarged in the basal third, posterior margin rounded, anterior margin straight, bearing in its apical internal part located toward rear a large very long seta. It differs in *P. insolita* [22], which is much enlarged in the two third apical, anterior margin slightly curved in basal third. And it also differs in *P. nkomekui* [13], which is short with short pedonculated proximal part and broad medial part.

Paramere of *Paurocephala famendongoe* sp. n., is lamellar, bottle-shaped, enlarged in more than three quarter basal, narrowed in apical quarter; it bearing very long simple setae long posterior margin and in its apical half, apex bearing small, dense setae; inner face with 11 stout setae in basal half posterior. It differs from *P. insolita* [22] in paramere almost straight posteriorly, widest in the middle and tapering apically, inner surface with few long setae in basal half posteriorly visible from lateral view. Paramere of *P. sinuata* [22, 13] is short, widest in basal third, rounded apically, inner surface with 5 or 6 peg-like setae situated between basal fifth and distal third. In *P. nkomekui* [13], paramere is elongated, inner margin incurved with five stout or peg-like setae situated from basal third to medial part, and the rest part of the paramere is covered by few inconspicuous simple setae, the apex is pointed.

Distal segment of aedeagus of *Paurocephala famendongoe* sp. n., 3-segmented, distal portion short with oblong apical dilatation; medial portion very short, slightly incurved in the apical part; sclerotised end tube of ductus ejaculatorius short and enlarged in the basal part. It differs from *P. insolita* in distal segment of aedeagus with distal portion fairly long, oblong and slightly enlarged in basal two third apical dilatation; medial portion short and stout, slightly incurved in middle of both margins and enlarged in apical part; sclerotised end tube of ductus ejaculatorius very long and incurved in the middle. In *P. nkomekui* [13], distal portion of aedeagus is relatively long apparently divided in two segments, rounded apex with an end-tube relatively long and thick.

Female proctiger of *Paurocephala famendongoe* sp. n., pear-shaped or quince-shaped, narrowed in the apical part, constricted at the terminal two thirds covering with very long simple setae; terminal margin sub-rounded bearing small setae; basal part very enlarged. Circumanal ring oval and ballooned in the middle in the dorsal view, circumanal with two rows of pores consisting of an inner dense ring of elongate pores and an outer dense ring of circular pores. In *P. gossypii* [27], female proctiger with a pair of median lobes at base, circumanal ring longer than wide, somewhat diamond-shaped, consisting of an inner row of elongated pores placed side by side and outer row of minute circular pores. In *P.*

insolita [22], female proctiger which is very enlarged in the basal two third with few scarcely small setae, apical third narrowed with rounded apex covered by dense small simple setae; circumanal ring fairly enlarged in the middle with a single row of oblong pores.

Female subgenital plate of *Paurocephala famendongoe* sp. n., shorter than proctiger, pointed apically, bearing long setae at the apical part; dorsal valvula expanded, inner valvula shorter than ventral valvula in profile view. Female subgenital plate of *P. insolita* [22] strongly enlarged in the basal two third parts; ventral valvula strongly enlarged; ovipositor very elongated and exuberant. In *P. nkomekui* [13], female proctiger incurved from the end of the circumanal and upturned with pointed apex; circumanal elongated with a medial groove and formed of two rows of rounded pores; subgenital plate is short than the proctiger with broad proximal part and straight tapering apical half ending by a pointed apex.

Antenna of the fifth instar larvae of *Paurocephala famendongoe* sp. n. differs from others species of the *gossypii* type by the absence of sectasetae, rather presence only of long simple setae; segment 3 very long with 9 long simple setae grouped in 3, 2, 1 and 1; bearing two terminal setae of which one longer simple and one shorter truncated lanceolate. It differs from larvae of *P. insolita* [22] where antenna is 3-segmented, with 5 sectasetae grouped in 2, 2 and 1 on segment 3. It differs from larvae of *P. sinuata* [13] where antenna distinctly 3-segmented, segment 3 with pointed sectasetae and three rhinaria, segment 2 with a funnel seta. In larvae of *P. nkomekui* [13], antenna is 3-segmented, segment 3 with short and robust pointed sectasetae and 4 rhinaria.

Forewing pad of *Paurocephala famendongoe* sp. n. with four truncated lanceolate setae marginally. In *P. insolita* [22], forewing pad with 5 to 7 sectasetae and 1 to 3 inconspicuous simple setae marginally. In *P. sinuata* [13] forewing pad with pointed sectasetae and truncated sectasetae. In *P. nkomekui* [13], forewing pad with 7 pointed sectasetae marginally. Dorsal sclerites of *Paurocephala famendongoe* sp. n. covered by truncated setae grouped in pairs at the level of lateral margins of abdomen; caudal plate without process. In *P. insolita* [22], dorsal sclerites covered by sectasetae as large as marginal ones and few inconspicuous setae; caudal plate with large tubercle-like extensions marginally, ending in a rounded process, V-shaped excavated basally. In *P. sinuata* and *P. nkomekui* [13], margin of the posterior part of abdomen present branching finger-like structure ended by pointed sectasetae or pointed and truncate seta.

Paurocephala famendongoe sp. n. anus terminal, circumanal ring distorted oval consisting of two row of pores, inner and outer distinct ring composed by row of elongated pores placed side by side. Circumanal covered with long simple setae and two lanceolated setae encrusted in internal margin. In *P. abutili* and *P. insolita* [22], anus ventral, outer circumanal ring with a single row of pores. *P. sinuata* and *P. nkomekui* [13], circumanal ring arched circular form, composed of a single row of elongated pores. Tarsal arolium

of *Paurocephala famendongoe* sp. n. triangular and petiolated, expanded basally, fan-shaped, closed to *P. insolita* and *P. abutili* [22]. In *P. sinuata* and *P. nkomekui* [13], arolium form globular and petiolated.

5. Conclusion

Paurocephala famendongoe sp. n., psyllid of *Psorospermum febrifigum*, is morphologically different from others species of the *gossypii* type in the *Paurocephala* genus. Specific characters were described on paramere with 11 stout setae in basal half posterior; male proctiger with very enlarged in the basal third and bearing in its apical internal part located toward the rear, a large very long seta; forewing without surface spinules in all cells; antenna of the fifth instar larvae without sectasetae, rather presence only of long simple setae; first flagellum very long with 9 long simple setae grouped in 3, 2, 1 and 1; dorsal sclerites covered by truncated setae grouped in pairs at the level of lateral margins of abdomen and caudal plate without process. The newly described psyllids species enriched the Afrotropical species of jumping plant-louse belonging to genus *Paurocephala* in *gossypii* group. But in tropical Africa, species biodiversity is little studied and entire taxa may disappear without being described. Much work on the taxonomy of species remains to be done.

Acknowledgements

We thank sincerely laboratory of Zoology of Higher Teachers's Training College of University of Yaounde I for his best work condition and collections conservation. We thank also Pr Yana Wenceslas (University of Bamenda-Cameroon) for the preliminary identification of the psyllid species from Adamawa Region.

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