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Research Article

Newly Described Psyllid *Diclidophlebia andjigae* sp.n. (Hemiptera: Liviidae), on *Grewia venusta* (Tiliaceae) from Cameroon

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Abstract

Background and Objective: Jumping plant lice or psyllids are phloem-feeding insects, mostly associated with angiosperms. Psyllids of the *Diclidophlebia* genus are pest of some important plants in Africa in general and Cameroon in particular. The aim of this study was to describe a new species of *Diclidophlebia* genus feed on traditional medicinal plant in Africa, *Grewia venusta* (*G. venusta*) Fresen, (Tiliaceae). **Materials and Methods:** Adult psyllids were captured with a sweep net of 0.5 mm mesh size and a mouth aspirator then preserved dry and slide mounted or in 70% ethanol. The species was identified under stereomicroscope, drawing and measurements were made from slide mounted material. **Results:** Adult forewing membrane smooth without setae; spinules present in all cells, covering cells up to veins, excluding c+sc cell which are covering in three quarter length posterior. All veins bearing conspicuous setae. Metatibia bearing an incomplete crown of 6 sclerotized apical spurs grouped as 4+2 and 4 slender unsclerotized setae. Male genitalia with prostigter simple and tubular slightly enlarged and apex truncated. Inner face of Paramere with two short setae robust at the basal part. Subgenital plate of female pointed apically. Fifth instar larvae stages were observed. Antenna 10-segmented with a single subapical rhinarium on segment 4, 6, 8 and 9. Following number of sectasetae were on each segment: 1(0); 2(1); 3(1); 4(2); 5(0); 6(3); 7(0); 8(1); 9(1); 10(0). Tarsal arolium without unguitactor. **Conclusion:** Taxonomic studies of the psyllid indicated that, *Diclidophlebia andjigae* sp.n. is a new psyllids species of Liviidae family described from Adamawa Region of Cameroon.

Key words: Taxonomic study, psyllid, *Diclidophlebia*, *Grewia venusta*, Cameroon

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Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Adamawa region is one of the ten administrative regions of Cameroon. It is situated between 6°49'59N latitude and 13°15'0E longitude, altitude level is situated between 1000-2000 m. The climate of this region is tropical soudanian type with two main seasons: dry and rainy season. The temperature is rather fresh at the average of 22°C, rainfall is between 900-1500 mm water/year¹. The type of vegetation of Adamawa Plateau is Savanna Guinean constituted of shrub and herbaceous². These shrubs are found in the Guinean and Soudanian Savanna. The flowering plants are dominated by Annonaceae, Celastraceae, Clusiaceae, Combretaceae, Fabaceae, Flacourtiaceae, Loganiaceae, Meliaceae, Moraceae, Rubiaceae, Rutaceae, Tiliaceae, Verbenaceae and others families. Tiliaceae plant family is also quite represented in the Adamawa region of Cameroon and *Grewia venusta* can be considered as one of the important plant found in this area. *G. venusta* wide spread from Senegal to Burkina and Togo, its scattered not much common and never plentiful³. Barks, root and leaves are used in African traditional medicine to fight against diarrhoea, cough, sore injury, backache and sexual infections⁴.

Psyllids or jumping plant-lice (Hemiptera: Psylloidea) are phloem-feeding insects, mostly associated with angiosperms. Psyllids are poorly studied in terms of taxonomy with about 4000 described species, which probably is less than half of the total number in the world⁵. Despite the fact that psyllids are most species-rich in the tropics and South temperate regions, the Palaearctic fauna remains the best studied with around 400 species reported from Europe or around 1000 species from China⁶⁻⁸. Very few taxonomic researches on psyllid are reported from tropical Africa⁹⁻¹². The biodiversity of psyllids in Cameroon was studied by several authors: Tamesse¹³, Dzokou¹⁴ in the West region, Yana¹⁵ in the Centre region, Ndankeu¹⁶ in the South region and Djakbe and Lebel¹⁷ in the Adamawa region. More recently, new psyllid species were described from Cameroon psyllid fauna¹⁸⁻²². More specimens need to be described within the Cameroon psyllid fauna.

The taxonomy of psyllid, revised by Burckhardt and Ouvrard²³ indicated that this group comprised eight families: Psyllidae, Triozidae, Phacopteronidae, Liviidae, Homotomidae, Carsidaridae, Calophyidae, Aphalaridae. The Liviidae family included Euphyllaurinae and Liviinae subfamily. The Liviinae subfamily included these genera: *Diclidophlebia* Crawford, *Aphorma* Hodkinson, *Camarotoscena* Haupt, *Livia* Latreille, *Paurocephala* Crawford and *Syntomoza* Enderlein. *Diclidophlebia* genus comprises 25 described species in the world fauna of psyllids²⁴. Sixteen species are African members

of pantropical genus *Diclidophlebia*. From Cameroon, five species of *Diclidophlebia* genus described are associated with Sterculiaceae (*D. harrisoni*²⁵ and *D. eastopi*²⁶ on *Triplochiton scleroxylon*, *D. leptonychia*¹¹ on *Leptonychia macrantha*; Euphorbiaceae *D. xuani* Messi *et al.*²⁷; Simaroubaceae/Irvingiaceae *D. irvingiae*¹¹ on *Irvingia gabonensis* and *Desbordesia glaucescens*) (Rutales). The number of unknown psyllids species within the *Diclidophlebia* genus could be more important in the tropic in general and Cameroon in particular. More surveys in Cameroon are necessary to complete the biodiversity of psyllids. During surveys in the Adamawa region of Cameroon, a psyllid species of *Diclidophlebia* genus was collected on *Grewia venusta* Fresen (Tiliaceae). Among African species members of pantropical genus *Diclidophlebia*, *D. pilosa* is a single species belonging to Tiliaceae host plant family (*Grewia bicolor* from Tanzania and Kenya)¹¹. This paper report for the first time, from Cameroon on the description of a new psyllid species feed on a Tiliaceae plant family.

MATERIALS AND METHODS

Type locality: Ngaoundere, Falaise Wack, 7°33'053"N, 13°33'232"E, 1375 m.

Type material: Holotype: ♀, Falaise Wack, 7 July, 2014. Paratype: Falaise Wack: 6 ♀♀ 4 ♂♂, same date as holotype and 2 fifth instar larvae; 4 ♀♀ 2 ♂♂ and 1 fifth instar larvae, 11 July 2015; Mbé: 5 ♀♀ 1 ♂ and 1 fifth instar larvae, 7°51'37,4"N; 13°35'56,5"E; 616 m, 13 July 2015; Tchabal: 4 ♀♀ 1 ♂ and 2 fifth instar larvae, 7°32'45,9"N; 13°33'49,0"E; 1365 m, 8 July, 2015.

Type series deposit: The type series of *Diclidophlebia andjigae* sp.n (Fig. 1a) 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 various localities of the Adamawa region, Cameroon, from August, 2014-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. The host plant was identified at the National Herbarium at Yaoundé (Cameroon) and was deposited in LZUY.

Observations and illustrations: The specimens were preserved dry and slide-mounted or in 70% ethanol and are deposited in Laboratory of Zoology, University of Yaoundé I.



Fig. 1(a-b): *Diclidophlebia andjigae* sp.n. psyllid of *Grewia venusta* of (a) Male adult and (b) Female adult

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 Burckhardt *et al.*^{11,28,29}

Head: Vertex, median suture, general cones, ocellus, compound eye; **Antenna:** Rhinaria, flagellomere; **Wing:** costal beak, pterostigma, vein, spinules, cells; **Leg:** metacoxa, meracanthus, metatibia, spurs, arolium; **Male genitalia:** proctiger, paramere aedeagus, ductus ejaculatorius; **Female genitalia:** proctiger, subgenital plate, dorsal and ventral valvulae, circumanal ring.

RESULTS

Description of *Diclidophlebia andjigae* sp.n.

Adult coloration: Brown to dark yellow (Fig. 1). Head and thorax brown, abdomen, excluding genitalia, yellow dark, genitalia brown. Eyes red and ocellous whitish. Antenna yellowish with apices of segments 4-9 and entire segment 10 brown. Forewing transparent yellowish with pattern consisting of brown dots in all cells, excluding apices of cells r_1 , r_2 , m_1 , m_2 and cu_1 . Hindwing transparent yellowish. Legs yellowish, excluding femora with brown pattern consisting of spots.

Structure: Head (Fig. 2a) inclined from longitudinal body-axis, head width 0.72-0.8 mm in males and 0.8-0.92 mm in females.

Head width 0.8 times slightly less than body width in males and 0.88-1 mm in females. Vertex sub-rectangular with one fovea on each side of the median suture, vertex surface covered with macro-scopical setae; frons small and large with long and moderately long simple setae. Frons bearing the prominent anterior ocellus. Compound eyes globular with two lateral ocelli above of vertex.

Antenna (Fig. 2b) 1.3 times longer than head width with a single subapical rhinarium on each segment 4, 6, 8 and 9; rhinaria with a short sensory setae on basal rim of segment 4, 6 and 8; segment 10 bearing two terminal setae moderately long of which one longer simple et one shorter and truncated. Third antennal segment, 0.16 mm long in both sexes, longer than others segments. Antenna measurements are 1-1.2 mm long in males and females.

Thorax weakly arched; pronotum relatively long, flat and weakly inclined; mesoscutellum swollen and large, metapostnotum with flattened acute tubercle.

Forewing (Fig. 2c) oblong-oval, widest at the middle, more twice times longer than wide. Forewing membrane smooth without setae; spinules present in all cells, covering cells up to veins, excluding $c+sc$ cell which are covering in three quarter length posterior. All veins bearing conspicuous setae; pterostigma moderately wide; vein $C+Sc$ wide, slightly curved, longer than cu_1 cell length, ending beyond the middle of vein R_5 ; vein R_5 strongly curved with apex pointed towards fore margin; veins R and $M+Cu_1$ have sub-equal length; vein M straight; vein M_{1+2} longer than M_{3+4} ; vein Cu_1 curved towards hind margin; veins M and R_5 parallel in the middle part of wing. Forewing measurements are about 1.6 mm long,

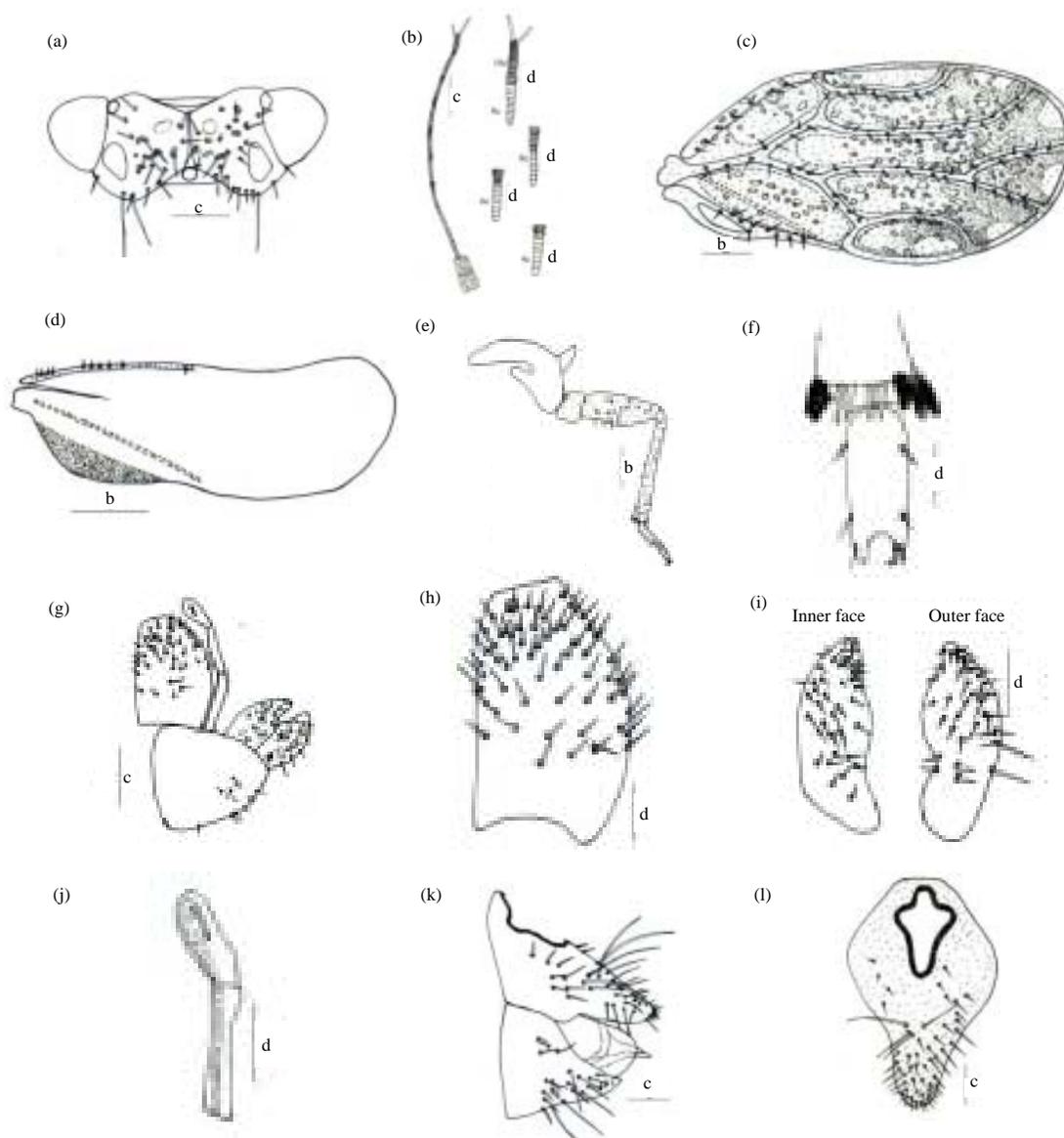


Fig.2(a-l): Adult organs of *Diclidophlebia andjigae* sp.n. psyllid of *Grewia venusta*. (a) Head, (b) Antenna, (c) Forewing, (d) Hindwing, (e) Metathoracic leg, (f) Metatibia apical end, (g) Male terminalia, (h) Male proctiger, (i) Paramere, (j) Aedeagus, (k) Female terminalia and (l) Female proctiger

Scales: a: 2 mm, b: 0.8 mm, c: 0.4 mm, d: 0.2 mm

0.72-0.8 mm width in males and 2-2.2 mm long, about 1 mm width in females; forewing are 2.1 times longer than width in males and 2.04 times longer than width in females. Hindwing (Fig. 2d) is transparent and shorter than forewing, it measures, venation almost absent, costal and subcostal veins with 2 setae before costal break and 2 grouped 2+5 costal setae after costal beak. Hindwing measurements are 1.2-1.4 mm long, 0.52-0.64 mm width in males and 1.6-2 mm long, 0.6-0.68 mm width in females; hindwing are 2.39 times longer than width in males and 2.78 times longer than width in females.

Metacoxa with large, horn-shaped, sub-rounded meracanthus (Fig. 2e). Metatibia (Fig. 2f) bearing an incomplete crown of 6 sclerotised apical spurs grouped as 4+2 and 4 slender unsclerotised setae; Metatibia length measures 0.48-0.56 mm in males and about 0.6 mm in females. Metabasitarsus without spurs.

Male genitalia (Fig. 2g) with proctiger simple and tubular (Fig. 2h) slightly enlarged, posterior margin rounded, anterior margin straight and apex truncated; proctiger bearing sparse moderately long setosity excluding basal part. Proctiger measurements 0.28-0.4 mm long, it is 0.43 times longer than

Table 1: Measurements (mm) and ratios of *Diclidophlebia andjigae* sp.n. adults (N= number of measured specimens)

Parameters	Males				Females			
	N	Min	Max	Average	N	Min	Max	Average
BL	08	2.00	2.48	2.28	15	2.60	3.00	2.80
BW	08	0.80	0.80	0.80	15	0.88	1.00	0.94
HW	08	0.72	0.80	0.74	15	0.80	0.92	0.86
AL	08	1.00	1.12	1.02	15	10.00	1.20	1.14
F ₁ L	08	0.16	0.16	0.16	15	0.16	0.20	0.18
WL	08	1.60	1.60	1.60	15	2.00	2.20	2.04
WW	08	0.72	0.80	0.76	15	1.00	1.00	1.00
wL	08	1.20	1.40	1.34	15	1.60	2.00	1.70
wW	08	0.52	0.64	0.56	15	0.60	0.68	0.61
MTL	08	0.48	0.56	0.50	15	0.60	0.60	0.60
MFL	08	0.40	0.44	0.40	15	0.40	0.48	0.44
MPL	08	0.28	0.40	0.32	/	/	/	/
PL	08	0.12	0.20	0.16	/	/	/	/
FPL	/	/	/	/	15	0.48	0.60	0.56
PSPL	/	/	/	/	15	0.40	0.44	0.41
DAL	08	0.16	0.24	0.20	/	/	/	/
BL/HW	08	2.78	3.10	3.08	15	3.61	3.75	3.78
BL/BW	08	2.50	3.10	2.85	15	2.95	3.00	2.97
AL/HW	08	1.38	1.40	1.37	15	1.25	1.30	1.32
F ₁ /HW	08	0.22	0.20	0.21	15	0.22	0.25	0.24
AL/F ₁	08	6.25	7.00	6.37	15	6.25	6.00	6.33
WL/HW	08	2.22	2.00	2.16	15	2.78	2.75	2.75
WL/WW	08	1.33	1.14	1.19	15	1.25	1.10	1.20
WL/wL	08	2.22	2.00	2.10	15	2.00	2.20	2.04
MTL/HW	08	0.66	0.70	0.67	15	0.75	0.65	0.69
PL/HW	08	0.17	0.25	0.21	/	/	/	/
FPL/FSPL	/	/	/	/	15	1.20	1.36	1.36

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

head width. Paramere (Fig. 2i) short and robust, basal and apical parts less wider with margin rounded, anterior margin slightly expanded in the upper part, posterior margin sinuous; outer face with moderately long sparse setae in the basal two thirds, short setae at the apical ends; inner face with two short setae robust at the basal part. Paramere measurements 0.12-0.2 mm, it is 0.21 times longer than head width. Aedeagus (Fig. 2j) 3-segmented with distal portion oblong, medial part narrow, slightly incurved; sclerotised end tube of ductus ejaculatorius long and straight. Aedeagus measurements 0.16-0.24 mm long, it is 0.27 times longer than head width.

Female genitalia (Fig. 2k) short and conical in profile view. Female proctiger (Fig. 2l) pear-shaped, expanded in the middle, apex rounded, circumanal ring cruciform in the dorsal view, proctiger bear several moderately long setae and few long setae (4 in number) at distal ends. Dorsal margin of proctiger sinuous, proctiger measurements 0.48-0.6 mm, it is 0.65 times longer than head width and 1.36 times longer than the subgenital plate. Subgenital plate (Fig. 2k) shorter

than proctiger, pointed apically, bearing long sparse setae at the apical part. Subgenital plate measurements 0.4-0.44 mm long. Valvula dorsalis expanded, inner valvula shorter than ventral valvula. Measurements and ratios are found in Table 1.

Fifth instar larvae

Coloration: Light with dark brown spots in dorsal portion of head; wing pad, caudal plate, tarsus, last antennal segments and dorsal sclerite dark brown red eyes.

Structure: Body slightly elongate (Fig. 3a), more than 2.5 times longer than width. Body sparsely covered by minute simple setae on head site, thorax and legs.

Forewing pad (Fig. 3c) with two sectasetae on the external margin. Forewing pad measurements 0.47-0.54 mm width. Abdomen with conical sclerites surrounding spiracles. Caudal plate with three sectasetae surrounding circumanal ring.

Antenna (Fig. 3b) long, 10-segmented with a single subapical rhinarium on each segment 4, 6, 8 and 9. Following

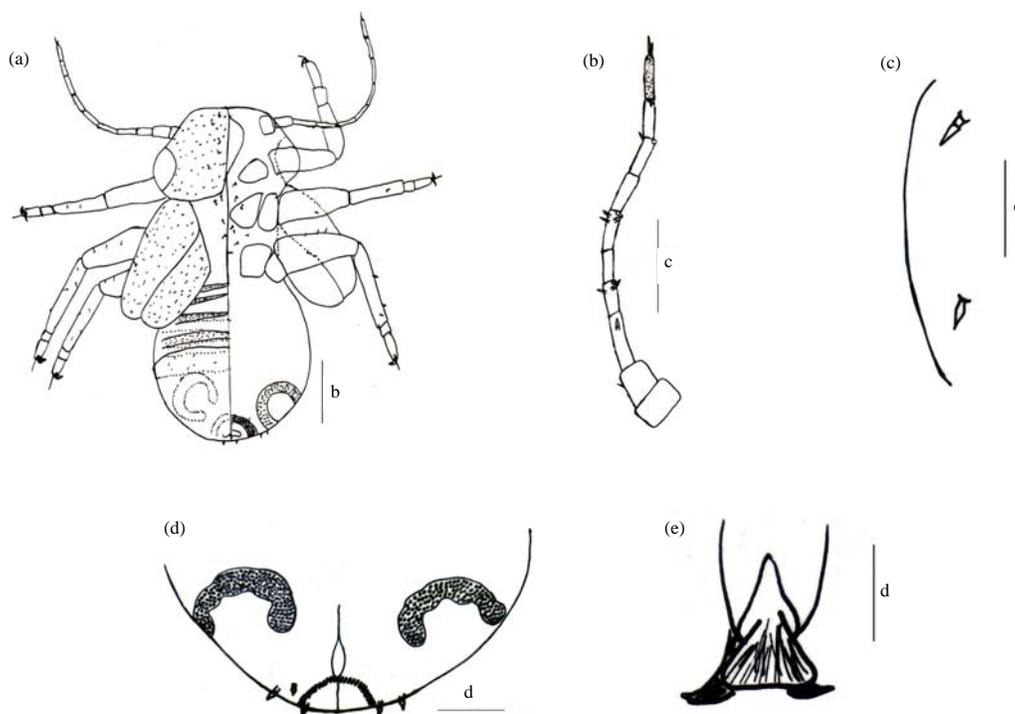


Fig. 3(a-e): Fifth larval stage organs of *Diclidophlebia andjigae* s.n. psyllid of *Grewia venusta*. (a) Fifth larval stage, (b) Antenna, (c) forewing pad, (d) Caudal plate, dorsal view and (e) Tarsal arolium
Scales bars: a: 2 mm, b: 0.8 mm, c: 0.4 mm, d: 0.2 mm

Table 2: Measurements (mm) of *Diclidophlebia andjigae* sp.n. fifth instar larva
(N: Number of measured specimens)

Parameters	N	Minimum	Maximum	Average
BL	04	1.36	1.63	1.50
BW	04	0.54	0.63	0.59
AL	04	0.81	0.81	0.81
MTL	04	0.27	0.27	0.27
WL	04	0.47	0.54	0.50

BL: Body length, BW: Body width, AL: Antenna length, WL: Forewing-pad length, MTL: Metatibial length

number of setae on each segment: 1(0); 2(1); 3(1); 4(2); 5(0); 6(3); 7(0); 8(1); 9(1) and 10(0). Antenna measurements 0.81 mm long.

Anus terminal, circumanal ring consisting of a single row of pores, extra pore fields forming semi-circular bands on dorsal and ventral surface on either side of caudal plate (Fig. 3d). Tarsal arolium (Fig. 3e) triangular, no petiolate, without unguitactor. Fifth larval stage measurements 1.36-1.63 mm long and 0.54-0.63 mm width, it is 2.54 times as long as wide. The measurements are found in Table 2.

Host plant: *Grewia venusta*, Tiliaceae. *Diclidophlebia andjigae* sp.n. provokes on its host plant rolling of leaves.

DISCUSSION

Diclidophlebia andjigae sp.n., psyllids of *Grewia venusta* differs others pantropical African members of *Diclidophlebia* genus excluding *D. pilosa* in forewing characteristic¹¹.

Adults of *Diclidophlebia andjigae* sp.n., has forewing yellowish with pattern consisting of brown dots in all cells, excluding apices of cells r_1 , r_2 , m_1 , m_2 and cu_1 It differs from *D. xuani* with forewing whitish, without pattern of infuscation, veins yellow or light brown, hind margin black basally²⁷. It's also differs from *D. harrisoni* with forewing whitish with irregular brown patches within cells and apices of the veins²⁵ and also differs from *D. eastopi* with forewing colouration dark brown which become gradually lighter towards the apex; forewing membrane sometimes consisting with yellowish irregular dots³⁰. *Diclidophlebia andjigae* sp.n. is closed to *D. pilosa*, psyllid of *Grewia bicolor*¹ in overalls forewing characteristic; forewing with pattern consisting of brown irregularly spaced dots present in all cells, with conspicuous setae on veins.

Metatibia in *Diclidophlebia andjigae* sp.n., bears an incomplete crown of 6 sclerotised apical spurs grouped as 4+2

and with 4 slender unsclerotised setae. It differs from *D. pilosa* in the number of sclerotised apical spurs 5+4 and slender unsclerotised setae¹¹. It differs from *D. xuani* in metatibia with 7-10, irregularly spaced sclerotised apical spurs; outer and inner spurs on raised edges²⁷. Metatibia of *D. harrisoni* comprised 8 more or less evenly spaced, subequal, weakly sclerotised apical spurs forming a posteriorly open crown²⁵. Metatibia of *D. eastopi* bears sclerotised apical spurs forming an outer (with 2) and inner (with 3-4) group; outer two spurs on raised, thumb-like process³⁰.

Male proctiger in *Diclidophlebia andjigae* sp.n., is tubular, slightly enlarged in the middle, posterior margin rounded, anterior margin straight and apex truncated less wider with straight margin. It differs from *D. pilosa* in the form of with apical margin truncated and not rounded¹¹. Proctiger of *D. xuani* and *D. harrisoni* possess a short and thick form^{25,27}. Proctiger of *D. dombeya* is long, thick, weakly produced posteriorly¹¹. And proctiger of *D. eastopi* is slender and tubular³⁰.

Male paramere of *Diclidophlebia andjigae* sp.n., is short and robust, basal and apical parts less wider with margin rounded, anterior margin slightly expanded in the upper part; without sclerotised tooth inward directed. Paramere of *D. pilosa* without sclerotised tooth inward directed¹¹. Parameres of *D. dombeya* are long, lamellar, gradually narrowing apically, apex consisting of a strongly sclerotised small tooth directed anteriorly¹¹. Parameres of *D. xuani* are short, square basally in form, with a weakly twisted, digitiform apical process pointing posteriorly, weakly sclerotised; outer face with moderately long setae along anterior and posterior margins; inner face with long setae²⁷. Paramere of *D. harrisoni* are short, broad basally, narrowing in apical third, apex consisting of a blunt upwards directed process; outer face with long setae along anterior margin and posterior margin in apical half; inner face with long setae²⁵. Parameres of *D. eastopi* are short, with a square base in form; outer face bears long setae along anterior margin and apical end; inner face with long setae on basal portion and a few setae on apex of the digitiform process³⁰.

Distal segment of aedeagus of *Diclidophlebia andjigae* sp.n.: 3-segmented with distal portion oblong medial portion more or less straight, slightly incurved in the middle and narrow end tube of ductus ejaculatorius long and straight and sclerotised. It differs from *D. xuani* in distal portion of aedeagus tubular in basal half; slightly widened in apical half forming an oval inflation sclerotised end tube of ductus ejaculatorius long and relatively weakly curved²⁷. It differs from *D. dombeya* in distal segment of aedeagus forming an oblong

oval inflation, sclerotised end tube of ductus ejaculatorius relatively short and slightly curved¹¹. It differs from *D. harrisoni* in distal segment of aedeagus strongly inflated with large ventral hook²⁵. And it also differs from *D. eastopi* in distal segment of aedeagus strongly inflated with large ventral beak³⁰.

Female proctiger of *Diclidophlebia andjigae* sp.n., with dorsal margin sinuous, pear-shaped, expanded in the middle, apex rounded, circumanal ring distinctly cruciform in the dorsal view. It differs from *D. xuani* in female proctiger which is cuneate, short, dorsal margin strongly concave, apex upturned, pointed²⁷. It differs from *D. dombeya* in female proctiger with a dorsal margin weakly concave, apex straight, pointed, circumanal ring short, oval¹¹. It differs from *D. eastopi* in female proctiger which is cuneate and short³⁰.

Female subgenital plate of *Diclidophlebia andjigae* sp.n., is shorter than proctiger, pointed apically. It differs from *D. pilosa* where the subgenital plate is rounded in the apical part with few small setae at the margin while it is pointed apically¹¹. It differs from *D. harrisoni* in female subgenital which is plate, short, pointed apically; circumanal ring cruciform³⁰.

For the fifth instar larvae. Antenna of *Diclidophlebia andjigae* sp.n. 10-segmented with a single subapical rhinarium on each segment 4, 6, 8 and 9. and following numbers of pointed sectasetae on each segment from 1 to 10: 1(0), 2(1), 3(1), 4(2), 5(0), 6(3), 7(0), 8(1), 9(1) and 10(0). It differs from larvae of *D. xuani* where antenna is 9-segmented with a rhinarium on each of segments 3, 5, 7 and 8 and following numbers of pointed sectasetae on each segment from 1 to 9: 1(0), 2(2-3), 3(2+2), 4(0), 5(2), 6(1), 7(2), 8(0) and 9(0)²⁷. It differs from larvae of *D. dombeya* where antenna is 9-segmented and following numbers of pointed sectasetae on each segment from 1 to 9: 1(0), 2(1), 3(2), 4(0), 5(2), 6(0), 7(1), 8(0) and 9(0)¹¹. It differs from larvae of *D. harrisoni* where antenna is 9-segmented with a rhinarium on each of segments 3, 5, 7 and 8 and following numbers of pointed sectasetae on each segment from 1 to 9: 1(0), 2(1), 3(1+2), 4(0), 5(2), 6(0), 7(1), 8(0) and 9(0)²⁵. And it also differs from larvae of *D. eastopi* where antenna is 9-segmented with a rhinarium on each of segments 3, 5, 7 and 8 and following numbers of pointed sectasetae on each segment from 1 to 9: 1(0), 2(1), 3(1+2), 4(0), 5(2), 6(0), 7(1), 8(0) and 9(0)³⁰. Antenna of the last instar larvae of *Diclidophlebia andjigae* sp.n. are 10-segmented like the one of *D. pilosa*, it's both differs from others Afrotropical species of the same genus with 9-segmented antenna¹¹.

The forewing pad of *Diclidophlebia andjigae* sp.n. bears two small sectasetae on the external margin. It differs in the

number of sectasetae on forewing pad 3-4 in *D. pilosa*¹¹. It differs from *D. dombeya* in forewing pad with 3-4 marginal and 8-9 dorsal pointed sectasetae¹¹. It differs from *D. harrisoni* in forewing pad relatively small with 12-16 marginal pointed sectasetae²⁵. And it also differs from *D. eastopi* in forewing pad relatively small with 12-16 marginal pointed sectasetae³⁰.

Caudal plate of *Diclidophlebia andjigae* sp.n. is regularly rounded posteriorly, with three sectasetae on either side of circumanal ring. It differs from *D. dombeya* in caudal plate large, evenly rounded posteriorly with four pointed sectasetae on the anterior margin, two transverse rows of sparsely spaced pointed sectasetae and two groups of pointed sectasetae near circumanal ring on either side¹¹. It differs from *D. harrisoni* in caudal plate small, unevenly truncate posteriorly with three pointed sectasetae laterally near the anterior margin on either side and 2+2 pointed sectasetae near circumanal ring²⁵. It differs also from *D. eastopi* in caudal plate small with three pointed sectasetae laterally near the anterior margin on either side and 2+2 pointed sectasetae near circumanal ring³⁰.

Extra pore fields on caudal plate in *Diclidophlebia andjigae* sp.n., forming semi-circular bands on dorsal and ventral surface on either side of caudal plate. It differs from *D. pilosa* in extra pore fields on caudal plate forming an isolated patch dorso-medially in addition to a dorsal and a ventral band¹¹. It differs from *D. dombeya* in extra pore fields on caudal plate small, consisting of small oval patches¹¹. It differs from *D. harrisoni* in extra pore fields on caudal plate separated into a dorsal rounded and a ventral angular component, outer band of extra pore field relatively long medially, end pointing outwards²⁵. And also differs from *D. eastopi* in extra pore fields on caudal plate separated into a dorsal rounded and a ventral angular component; outer band of extra pore field relatively long medially, end pointing outwards³⁰.

Tarsal arolium in *Diclidophlebia andjigae* sp.n., is triangular, no petiolate, without unguis tractor; less longer than claw. It differs from *D. pilosa*, *D. harrisoni* and *D. eastopi* in the length of tarsal arolium about twice as long as claws^{11,25,30}. It differs from *D. dombeya* in tarsal arolium length about 1.5 times as long as claws¹¹.

The new species, *Diclidophlebia andjigae* sp.n., psyllid of *Grewia venusta*, Tiliaceae is described. This study enriched the biodiversity of jumping plant louse of *Diclidophlebia* genus from Cameroon. The known *Diclidophlebia* species in Africa is currently seventeen and the number of described psyllid species of this genus from Cameroon is six. It is therefore important to pursue this inventory in order to complete the biodiversity of psyllids in Cameroon in particular and in Africa in general. The taxonomy study of this insect enables us to

identify this psyllids. The growers will easily recognize this insect in case of the implementation of an Integrated Pest Management to protect its host plant.

CONCLUSION

Diclidophlebia andjigae sp.n. is morphological different from others afrotropical psyllids species of the same genus. Specific characters were described on forewing, metatibia bearing an open crown of 6 sclerotised apical spurs, male proctiger with apical ends truncated, paramere without sclerotised tooth inward directed, female terminalia with subgenital plate rounded in the apical part with few small setae surrounding the margin, antenna of the last instar larvae 10-segmented and arolium less longer than claw.

SIGNIFICANCE STATEMENT

The new species, *Diclidophlebia andjigae* sp.n., psyllid of *Grewia venusta*, Tiliaceae is described. This study enriched the biodiversity of jumping plant louse of *Diclidophlebia* genus from Cameroon. Considering the medicinal importance of the host plant, an integrated pest management against this pest could be necessary in case of domestication of this plant. This identification of the pest could be considered as an important first step of an IPM.

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