

A New Species of *Diaphorina* Genus (Hemiptera, Psyllidae) from Cameroon: *Diaphorina Gardeniae* Sp. Nov. Associated with *Gardenia Erubescens* (Rubiaceae)

*Dayang Louis Djakbé¹, Dzokou Victor Joly², Tamesse Joseph Lebel³

¹Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, P.O. Box 96, Dschang, Cameroon.

²Phytopathology and Agricultural Zoology Research Unit, Faculty of Agronomy and Agricultural Sciences, University of Dschang, P.O. Box 222, Dschang, Cameroon.

³Laboratory of Zoology, Higher Teachers Training College, University of Yaounde I, P.O. Box 47, Yaoundé, Cameroon.

Received: 10 November 2025

Accepted: 02 December 2025

Published: 13 December 2025

*Corresponding Author: Dayang Louis Djakbe, Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, P.O. Box 96, Dschang, Cameroon.

Abstract

Background and Objective: *Diaphorina citri* is known to be the most serious pest of citrus, transmitting the greening disease of citrus; *Diaphorina* is a species-rich genus, native to the tropics and subtropics of the Old World. The aim of this study was to describe a new species of *Diaphorina* genus associated with traditional medicinal plant in Africa, *Gardenia erubescens* (Rubiaceae).

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, drawings and measurements were made from slide-mounted material.

Results: Adults of *Diaphorina gardeniae* sp. nov. have forewings with sub-opaque membrane, densely maculated with five clear spaces present at the apical margin, highly remarkable by a broad yellowish area occupying almost the first half part of anterior surface and end part first part of posterior surface of subcostal cell; genae processes short with rounded margins; male proctiger with lateral lobes very large, broadly rounded in middle; paramere slender, inner surface bearing small, numerous setae, directed downwards; female subgenital plate with the posterior half bent upward, middling invaginated ventrally near base; margin of caudal plate of the last instar larvae bearing fifteen pointed lanceolate setae on each side and also four simple long setae on each side. Conclusion: Taxonomic studies indicated that, the psyllid species described is a new species the *Diaphorina* genus from Cameroon.

Key words: Taxonomic studies, psyllid, *Diaphorina*, *Gardenia erubescens*, Cameroon

1. INTRODUCTION

Psyllids or jumping plant-lice, are plant-sap sucking insects, belonging to Psylloidea, superfamily of Sternorrhyncha suborder. Jumping plant-lice include about 4,000 described and at least as many undescribed species [1]. Some species cause serious economic losses to crop plants, either by phloem feeding and honeydew production or indirectly by transmission of phytopathogenic agents like phytoplasmas [2]. *Diaphorina citri* is known to be the most serious pest of citrus; it is very well known for transmitting the greening disease of citrus (huanglongbing), in the presence of disease pathogens such as *Candidatus* spp. [3]. They are generally very host-specific, in particular as larvae; most species are monophagous or oligophagous and related psyllid species tend to develop on related plant species [2, 4]. The species belonging to *Diaphorina* genus are related and developed on at least 18 families of plants, mainly on Anacardiaceae, Asteraceae, Loganiaceae and Apocynaceae the Afrotropical and Madagascan regions [5]. *Diaphorina* is a species-rich genus, native to the tropics and subtropics of the Old World, particularly in more arid regions with some 80 species described [6, 5, 7, 8, 9, 10]. Adamawa region is one of the ten administrative regions of Cameroon. It is situated between 6°49'59''N latitude and 13°15'0''E longitude with altitude level between 1000-2000 m. The climate of this region is tropical Sudanian type with two main seasons: dry and rainy season. The temperature is rather fresh at an average of 22°C, rainfall is between 900-1500 mm water/year [11] The type of vegetation of Adamawa Plateau is Guinean Savanna constituted of shrubs and herbaceous [12]. These shrubs are found in the

Guinean and Sudanian Savanna. The Afrotropical and Neotropical biogeographical realms are probably particularly species-rich; like south temperate regions, but also constitute the least known faunas [13, 1]. In Cameroon, only four species of *Diaphorina* Löw, 1880 [14, 9, 10, 15] have been published. The information on psyllid fauna of Cameroon in general and of Adamawa region in particular is scarce with a few studies undertaken on the taxonomy of psyllids. The aim of the present paper is to lead taxonomic studies on an undescribed species belonging to the *Diaphorina* genus from Cameroon.

2. MATERIAL AND METHODS

Type locality: Dang, 7°24'42, 4''N; 13°32'42, 4''E; 1077 m.

2.1. Type Material for *Diaphorina Gardenia*

Holotype: ♂, **University Campus of Ngaoundere**, 20 August 2011. Paratype: **Tchabal** : 16♂, 16♀, 1 larva, 28 April 2011; 165♂, 82♀, 16 larvae, 11-26 June 2011; 73♂, 49♀, 10 larvae, 12-31 July 2011 ; 54♂, 27♀, 34 larvae, 9-18 August 2011; 20♂, 32♀, 2 larvae, 3 April 2012; 73♂, 53♀, 16-25 August 2012; 10♂, 13♀, 26 July 2013; 7°32'45,9''N; 13°33'49,0''E; 1365 m. **University Campus of Ngaoundere**: 70♂, 43♀, 10 larvae, 21-31 May 2011; 47♂, 48♀, 4 larvae, 21-28 June 2011; 65♂, 39♀, 29 larvae, 13-20 August 2011; 8♂, 19♀, 6 larvae, 20-27 December 2011; 37♂, 29♀, 1 larva, 27 March 2012; 15♂, 6♀; 4♀, 3 January 2013; 3♂, 6♀, 20 July 2013. **Dang** : 55♂, 54♀, 8 larvae, 17-26 May 2011; 5♂, 3♀, 14 July; 16♂, 16♀, 31 larvae, 24-31 December 2011; 8♂, 7♀, 5 April 2012 ; 15♂, 9♀, 4 larvae, 6 September 2012; 14♂, 18♀, 59 larvae, 22-29 July 2013; 7°24'42,4''N ; 13°32'42,4''E ; 1077 m. **Mbizoro**: 31♂, 11♀, 5 larvae, 10-28 May 2011; 55♂, 46♀, 2 larvae, 6-30 June 2011; 12♂, 10♀, 6-16 August 2011; 8♂, 9♀, 112 larvae, 2 January 2013; 51♂, 39♀, 6 larvae, 27 March 2013; 7°24'25,7''N ; 13°32'55,4''E ; 1069 m. **Falaise Wack**: 6♂, 5♀, 7 August 2014, 7°33'05,3''N; 13°33'23,2''E; 1375 m.

2.2. Type Series Deposit

The type series of *Diaphorina gardeniae* sp. nov. was deposited in the collections of the Laboratory of Zoology, Higher Teacher's Training College, University of Yaounde I, Cameroon (LZUY).

2.3. Field survey

Observations and survey took place in various localities of the Adamawa Region, Cameroon, from May 2011 to July 2013. During each survey, host plants were inspected. Adults of psyllids 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 in Yaoundé (Cameroon) and is deposited in LZUY.

2.4. Observations and illustrations

Specimens are preserved dry and slide-mounted or in 70% ethanol and deposited in LZUY. The measurements were made from slide-mounted specimens using Leica stereomicroscope. The dissected organs were mounted on an objective slide in polyvinyl drop and covered with an objective slide cover. The drawings were realized under a Leica microscope equipped with a drawing tube.

Terminologies: terminologies used for the description follows the identification keys of [6, 5, and 16].

Head: Vertex, median suture, genal cones, ocellus, compound eyes; **Antenna:** Rhinaria, flagellomere; **Wing:** costal break, 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.

3. RESULTS

Description of *Diaphorina gardeniae* sp. nov. Coloration. Adults (Figs. 1a and 1b) are generally dark brown. Head and thorax dark brown. Antennae yellowish with two apical segments and two basal segments dark brown. Spaces between dorsal and ventral sclerites, pleurites, rest of the antenna, and tibia of hind legs yellow. Forewings sub-opaque, milky white, densely maculated with smoky brown maculae, most dense on C+Sc vein in middle, apex of M_{2+3} , Rs, Cu_{1a} and Cu_{1b} veins, five clear spaces present at the apical margin, one yellowish lunate area at apical margin in each cell, r_1 , r_2 , m_1 , m_2 and cu_1 ; highly remarkable by a broad yellowish area occupying almost the first half part of anterior surface and end part first part of posterior surface of subcostal cell, with somewhat scattered yellowish area

maculation on all another cells, pterostigma dark brown; veins light brown. Hind wing hyaline, C+Sc, A₁ and A₂ veins entirely dark brown. Hind to forelegs dark brown except half posterior of tibiae and half anterior of tarsi yellowish.



Figure 1. *Species of Diaphorina gardeniae sp.nov. and host plant, a: female adult (x25), b: male adult (x25), c: Gardenia erubescens (Rubiaceae) Structure*

The head (Fig. 2) narrower than the body 0.71 times as wide as body width and inclined ventrally; vertex about twice as wide as long at median line, with inconspicuous setae, one distinct fovea on each side of median suture and slightly closer to this line than to lateral margins, anterior ant lateral margin rounded, posterior margin almost straight with a slight depression in the middle. The lateral ocelli are located in the subapical parts of the tubercles. Genae processes almost rectangular, in same plane as vertex, contiguous at base, wider than long, tips rounded, short and with rounded margins bearing a row of a few simple setae. Antenna (Fig. 3) relatively long, antennal flagellum about 0.91 times as long as head width in the both sexes. Antenna ten-segmented bearing few simple setae on all segments, two basal segments robust, third segment longest, terminal segment smallest, bearing two terminal setae of unequal dimensions, one simple and long and the other rod-shaped and short, subapical rhinaria present on segments 4, 6, 8, and 9; rhinarium on segment 6 only associated with simple seta. Thorax arched, pronotum more swollen and arched dorsally, mesopraescutum and mesoscutum broader and curved. Forewing (Fig. 4) 2.0-2.1 times longer than wide in males, 2.2-2.6 times longer than wide in females, about twice as long as wide in both sexes, long and broadest subapically, with rounded apical margins; pterostigma long and narrow, distinct with conspicuous setae on external margin only, R_s vein is quite sinuous in distal half; M and Cu₁ veins straight; M₁₊₂ and M₃₊₄ veins are also straight and oblique, M₁₊₂ vein longer than M₃₊₄ vein; Cu_{1a} vein curved and the Cu_{1b} vein straight. All veins armed with a double row of minute setae. Hind wing (Fig. 5) elongate, relatively narrow, more than twice as long as broad (2.2-2.5 times in males and 2.29-2.77 times in females), broadest in the middle, narrowly rounded at apical margin; costal vein with 3+13 ungrouped setae basally, three setae before costal break and 13 others after costal break and one hooked seta apically (hamulus); all veins are very conspicuous.

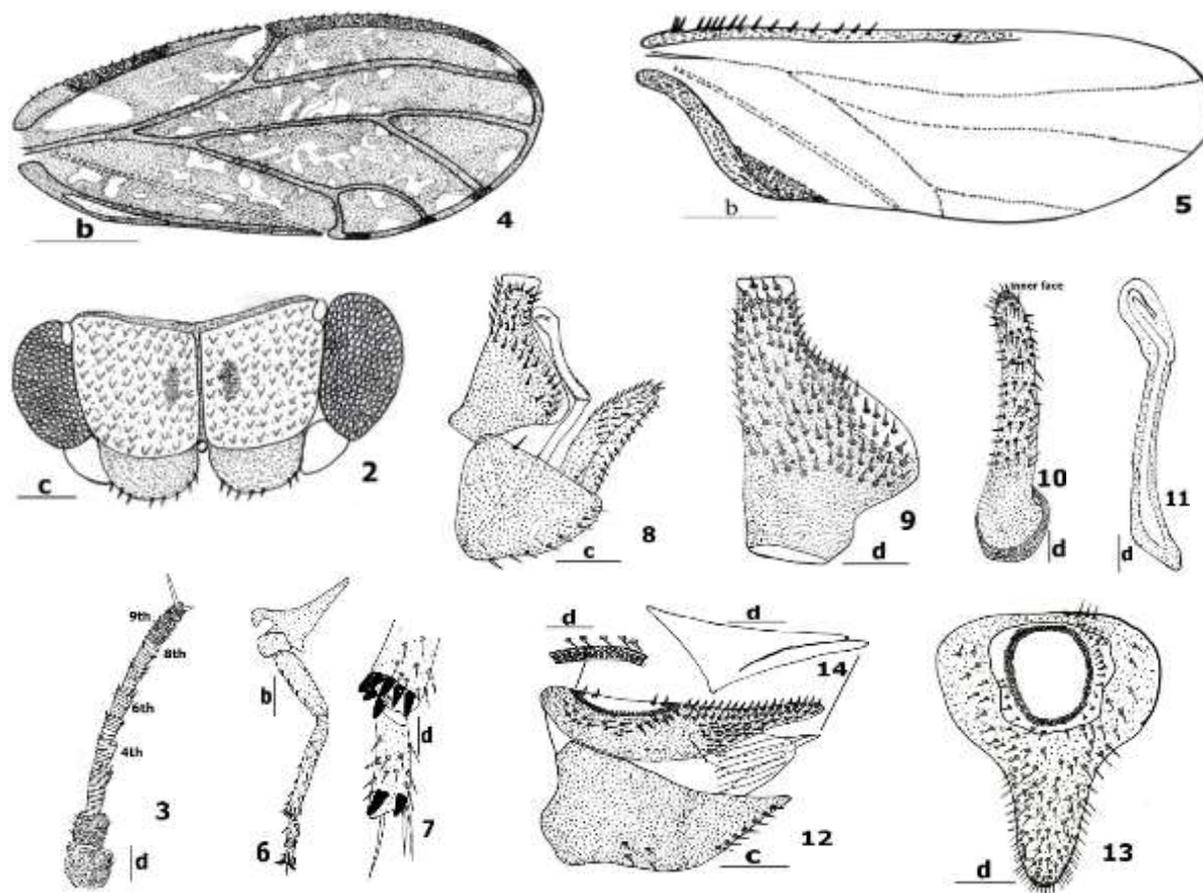
Hind leg (Fig. 6) with metacoxa robust, well-developed meracanthus, horn-shaped and pointed apically. Metatibia (Fig. 7) without basal spur, with an open crown of 8 dark sclerotized spurs on the margin at apex, three visible on internal side and five visible on external side. Metabasitarsus with two dark sclerotized apical spurs. Male genitalia illustrated in Figure 8 smaller than abdomen, ventral plate with scattered setae and somewhat abruptly upwardly curved at extremity. Male proctiger (Fig. 9) simple, about 0.45 mm long, longer than parameres, in profile, anterior margin straight, lateral lobes very large, broadly rounded in middle, and gradually narrowed in apical part and also gradually narrowed in basal part, apical margin truncated; male proctiger bearing a dense long simple setae in all part directed rearwards, except in the basal part. Parameres (Fig. 10) lamellar and thin, slightly shorter than male proctiger (about 0.30 mm long), slender, narrower apically and rounded at apex in profile, the posterior margin slightly curved in its distal half; the anterior margin rounded, wider in the basal region; apex surrounded by a cluster of small setae, directed upwards, inner surface bearing small, numerous setae, directed downwards. Aedeagus bi-segmented, distal segment (Fig. 11) with a simple, elongated apical dilatation, ductus ejaculatorius short and sinuate directed rearwards, posterior margin incurved and anterior margin straight, medial segment weakly expanded basally. Female genitalia (Fig. 12) short and conical in profile, smaller than abdomen, broad basally and narrow apically. Female proctiger (Fig. 13), 1.3-1.8 times longer than subgenital plate, broadest at basal half part, roundly pointed at apex, dorsal

margin slightly concave towards apex, apical one-third bearing longish dense setae. Circumanal pore ring oval consisting of two rows of pores surrounded by longest setae, the outer row rounded and the inner one oblongate pores. Subgenital plate shorter than female proctiger, triangular with the posterior half bent upward and roundly pointed at apex, anterior margin concave at base; posterior margin with a row of long simple setae directed rearwards. Dorsal and ventral valvulae (Fig. 14) straight ventrally, tip of ovipositor acutely pointed, lateral valve with a rounded swelling. Measurements and ratios are found in table 1.

4. FIFTH INSTAR LARVA

Colouration: The fifth-stage larva is generally dark brown with orange compound eyes. Outer margins of wing-pads, antenna, spots on dorsal side of head and thorax, dorsal sclerites and also caudal plate brown to dark brown. Spaces among spots, dorsal sclerites and the rest of wing-pads whitish to yellowish. There are four pairs of dark spots on the dorsal side of the thorax and five pairs of dark sclerites on the dorsal side of the abdomen.

Structure. The fifth-stage larva (Fig. 15) is longer than wide and flattened dorsoventrally, broadly oval; about 2.41 times longer than wide. Wing-pads projecting beyond the general margin of body, humeral lobes well developed, margins of wing pads (Fig. 17) with extremely minute setae. Antenna (Fig. 16), long, about 0.95 mm long, three-segmented, two basal segments are slight broad and transverse, third segment long with imperfect segmentations, with four rhinaria, several pointed lanceolate setae and two unequal thick setae on terminal apex. Margin of the caudal plate (Fig. 18) beset with a row of sectasetae. Abdomen with apex highly incurved and bearing fifteen pointed lanceolate setae on each side (a group of 30 at tip) and also four simple long setae on each side (a group of 8). Anus (Fig. 20) terminal, circumanal ring close to anal margin, bag-shaped with a single row of oblong waxy pores. Tarsal arolium (Fig. 19) triangular and petiolate fan-shaped. The measurements of fifth-stage larvae are recorded in Table 2.

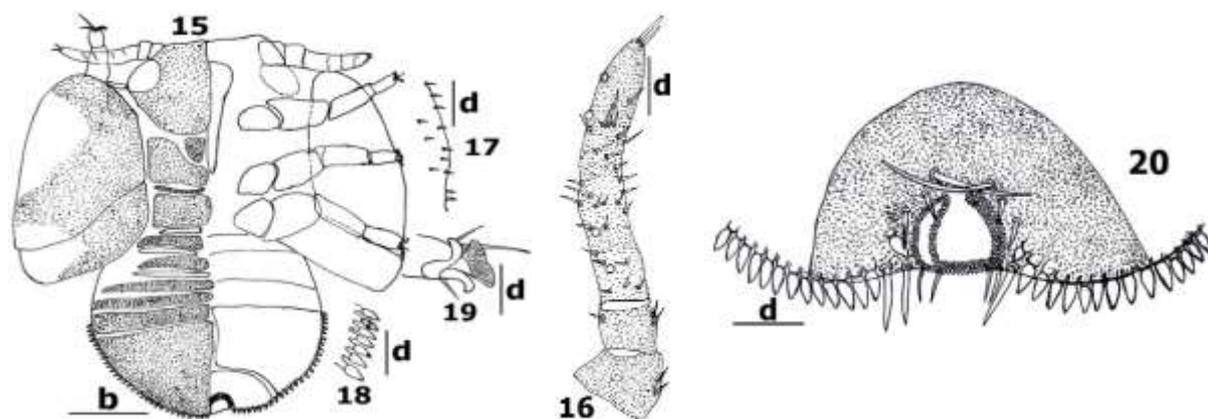


Figures 2-14. Adult organs of *Diaphorina gardeniae* (2) head ; (3) antenna ; (4) forewing ; (5) hindwing ; (6) metathoracic leg, (7) metatibia apical end ; (8) male genitalia ; (9) male proctiger ; (10) paramere ; (11) aedeagus ; (12) female genitalia ; (13) female proctiger; (14) ventral valvulae, lateral view. Scales: a: 2 mm; b: 0.8 mm; c: 0.4 mm; d: 0.2 mm

Table 1. Measurements (mm) and ratios of *Diaphorina gardeniae* sp. nov. adults species (N= number of measured specimens)

Parameters	Males				Females			
	N	Min	Max	Average	N	Min	Max	Average
BL	40	2.2	3.6	3.06	40	2.6	3.8	3.31
BW	40	1.0	1.32	1.16	40	1.08	1.36	1.22
HW	40	0.72	1.0	0.83	40	0.76	1.0	0.87
AL	40	0.72	0.84	0.76	40	0.76	0.88	0.80
F ₁ L	40	0.12	0.16	0.12	40	0.12	0.16	0.12
WL	40	2.0	2.52	2.27	40	2.2	2.6	2.36
WW	40	1.0	1.2	1.12	40	1.04	1.36	1.2
wL	40	1.7	2.2	1.94	40	1.8	2.2	1.99
wW	40	0.68	1.0	0.78	40	0.64	0.92	0.79
MTL	40	0.6	0.72	0.63	40	0.6	0.72	0.65
MFL	40	0.4	0.52	0.42	40	0.4	0.52	0.43
MPL	40	0.4	0.52	0.45	/	/	/	/
PL	40	0.28	0.36	0.30	/	/	/	/
FPL	/	/	/	/	40	0.52	0.72	0.61
PSPL	/	/	/	/	40	0.4	0.56	0.46
DAL	40	0.28	0.36	0.30	/	/	/	/
BL/HW	40	3.05	3.6	3.68	40	3.42	3.8	3.8
BL/BW	40	2.2	2.72	2.63	40	2.40	2.79	2.71
AL/HW	40	1.0	0.84	0.91	40	1.0	0.88	0.91
F ₁ /HW	40	0.16	0.16	0.14	40	0.15	0.16	0.13
AL/F ₁	40	6.0	5.25	6.33	40	6.33	5.5	6.66
WL/HW	40	2.77	2.52	2.73	40	2.89	2.6	2.71
WL/WW	40	2.0	2.1	2.02	40	2.11	1.91	1.96
WL/wL	40	1.17	1.14	1.17	40	1.22	1.18	1.18
MTL/HW	40	0.83	0.72	0.75	40	0.78	0.72	0.74
PL/HW	40	0.38	0.36	0.36	/	/	/	/
FPL/FSPL	/	/	/	/	40	1.3	1.28	1.32
LR	40	1.0	1.4	1.20	40	1.0	1.4	1.22
LM+Cu ₁	40	0.48	0.8	0.60	40	0.52	0.8	0.67
LM ₁₊₂	40	0.8	1.4	1.04	40	0.92	1.4	1.12
LM ₃₊₄	40	0.8	1.2	0.92	40	0.72	1.28	1.01
LPT	40	1.0	2.0	1.52	40	1.2	2.2	1.75

Adult 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, M₁₊₂ vein length of forewing; LM₃₊₄, M₃₊₄ vein length of forewing; LPT; pterostigma length.



Figures 15-20. Fifth larval stage organs of *Diaphorina gardeniae*. (15) Fifth larval stage, left dorsal view, right ventral view; (16) antenna; (17) forewing pad; (18) margin of caudal plate; (19) tarsal arolium; (20) circumanal pore ring. Scales: b: 0.8 mm; d: 0.2 mm

Table 2. Measurements (mm) and ratio of *Diaphorina gardeniae* sp. nov. fifth instar larva (N= number of measured specimens)

Parameters	N	Minimum	Maximum	Average
BL	40	1.72	2.18	1.86
BW	40	0.63	1.09	0.77
AL	40	0.90	1.0	0.95
MTL	40	0.18	0.2	0.19
WL	40	0.41	0.50	0.46
BL/BW	40	2.0	2.73	2.41

Fifth instar larva legend: BL, body length; BW, body width; AL, antenna length; WL, forewing-pad length; MTL, metatibial length.

Etymology: Derived from the genus name of host plant, *Gardenia*, collected in the Adamawa region of Cameroon.

Host plant: *Gardenia erubescens* Stapf & Hutch. (Rubiaceae) (Fig. 1c).

Gardenia erubescens: In traditional pharmacopoeia, the fruits are used against otitis; the roots and leaves are used against syphilis and liver diseases. A combination of bark and roots is sometimes recommended for the treatment of sexual asthenia and female sterility [17, 18].

Distribution: *Gardenia erubescens*, the plant is distributed in the Sudanian to Guinean savannas of Senegal, Cameroon as far as Sudan.

Biology: *Diaphorina gardeniae* sp.nov. provokes distortion or winding of buds and young leaves and also necrosis of the leaves. Larvae and adults living and feeding on the under surface of leaves on its host plant.

5. DISCUSSION

Diaphorina gardeniaensis sp. nov. is close in forewing shape and maculation to *D. solani*, [6] on *Solanum incanum* (Solanaceae); *D. tenebrosa*, [6] on *Rhus amerina* (Anacardiaceae); *D. albomaculata*, [6] on *Ozoroa reliculata*, *O. paniculosa* (Sond.) (Anacardiaceae); *D. pfanderiae*, [9] on *Ozoroa pulcherrima* (Anacardiaceae) and *D. enderleini*, [7, 14] on *Vernonia amygdalina* (Asteraceae).

In adults of *Diaphorina gardeniae* sp. nov., forewing coloration with milky white sub-opaque membrane, densely maculated with smoky brown maculae, five clear spaces present at the apical margin, highly remarkable by a broad yellowish area occupying almost the first half part of anterior surface and end part of posterior surface of subcostal cell. It differs from *D. solani* [6] with forewing membrane with somewhat scattered sepia maculation, most dense on Radius, base of radial cell, adjacent to M_{1+2} and Cu_2 ; fading on basal sixth, r_1 , r_2 and m_2 cells with a few scattered small irregular pigmented spots. It also differs from *D. albomaculata* [6] with forewing smoky brown to black, strikingly relieved by a broad milky white area occupying most of subcostal cell and including C+Sc, along anal fold, and between M, M_{1+2} and Cu_1 inwards from margin of wing. It equally differs from *D. tenebrosa* [6] with forewing almost completely dark sepia fading on basal sixth, with a few scattered small irregular unpigmented spots. It also differs from *D. enderleini* [7] with forewing predominantly light with dark pattern consisting of dots that are partly confluent; apical half with more or less uniformly distributed maculae, while basal half more nearly clear and hyaline with less number of brown spots; and also differs from *D. pfanderiae* [9] with forewing black, strikingly relieved by a broad milky white area occupying most of subcostal cell and including C+Sc, pterostigma and 2nd posterior half of m_2 cell, with light spots along wing margin in cells r_1 , r_2 and m_1 .

In *Diaphorina gardeniae* sp. nov., vertex with one distinct fovea on each side of median suture; genae cones almost rectangular, wider than long, short, tips rounded. It is closed to *D. solani* [6] with genae cones pubescent and short. It differs from *D. albomaculata* [6] with a large fovea in each half near posterior margin, genae cones rather shallowly conical from above. It also differs from *D. tenebrosa* [6] with a deep fovea in a rather large shallow medial depression in each half, and it also differs from *D. enderleini* [7] with small circular fovea, genae cones diverging outward, subconical at tips. Forewing in *Diaphorina gardeniae* sp. nov., long and broadest subapically, with rounded apical margins. It differs from *D. solani* [6] with forewing less narrowed to base, broadly rounded at tip, margin fringed with

short hairs; whereas in *D. albomaculata* [6], it somewhat broader and less tapered to base, pterostigma very broad; it equally differs from *D. enderleini* [7] with forewing large, broadest subapically, narrowly rounded at apex, R_s strongly flexed near apex; and it also differs from *D. pfanderiae* [9] with forewing relatively narrow, R_s slightly flexed near apex. Hindwing in *Diaphorina gardeniae* sp. nov., elongate, relatively narrow, costal vein with 3+13 ungrouped setae basally, and 1 hooked seta apically (hamulus); all veins are very conspicuous; whereas in *D. solani* [6], hindwing with Sc strong, with 11 strong slightly curved bristles at base and it also differs from *D. enderleini* [7], in which hindwing large, membrane uniformly beset with minute points, costal vein few simple setae.

Male proctiger in *Diaphorina gardeniae* sp. nov. with lateral lobes very large, broadly rounded in middle, apical margin truncated; ventral plate somewhat abruptly upwardly curved at extremity. It differs from *D. solani* [6] and *D. tenebrosa* [6] with proctiger more strongly laterally rounded, broadest in middle, lateral margins narrow towards apex and towards base, apical margin serrate. It also differs from *D. albomaculata* [6] and *D. pfanderiae* [9] with proctiger straight and thick, inner margin broadest near middle, apical margin truncated obliquely.

Paramere in *Diaphorina gardeniae* sp. nov., lamellar and thin, slender, narrower apically and rounded at apex in profile, apex surrounded by a cluster of small setae, inner surface bearing small, numerous setae, directed downwards. It differs from *D. albomaculata* [6] with paramere long, pubescent with a thick black spur at its apex; outer margin with a slight bulge near base. It also differs from *D. pfanderiae* [9] with a thick black point at its apex surrounded by a cluster of long setae, directed outwards and it also differs from *D. tenebrosa* [6] and *D. enderleini* [14] with a distinct tooth on inner apex forward directed. Distal segment of aedeagus in *Diaphorina gardeniae* sp. nov., slender with a simple, elongated apical dilatation, medial segment weakly expanded basally. It differs from *D. solani*, *D. albomaculata* [6] and *D. pfanderiae* [11] with obovate apical dilatation, ductus ejaculatorius short and straight; in *D. tenebrosa* [6], aedeagus with rather large apical dilatation splitting.

Female proctiger in *Diaphorina gardeniae* sp. nov. with dorsal margin slightly concave towards apex; circumanal pore ring oval. It differs from *D. solani* [6] with area around anal ring slightly concave, tip slender, slightly upcurved; anal ring rather longitudinally compressed and slit-like. It also differs from *D. albomaculata* and *D. tenebrosa* [6] with proctiger regularly tapered to acutely rounded tip, anal ring broadly oval. It also differs from *D. enderleini* [7] with proctiger attenuate, weakly flexed ventrally near apex; circumanal ring completely reduced.

Female subgenital plate in *Diaphorina gardeniae* sp. nov., triangular with posterior half bent upward and roundly pointed at apex, middling invaginated ventrally near base. It differs from *D. solani* [6] with a strong basal swelling. It also differs from *D. tenebrosa* [6] with a strong subconical rather narrow projection in middle, which is distinctly more. It also differs from *D. enderleini* [7] with apex acutely pointed, dorsal valvula with apical part projecting laterally as broad membranous plate and rounded posteriorly, ovipositor slightly exerted and it also differs from *D. pfanderiae* [9] with ventral margin plate angular.

For the fifth instar larvae. In *Diaphorina gardeniae* sp. nov., flattened dorsoventrally, broadly oval; margins of wing pads with extremely minute setae. It is close to *D. solani*, *D. albomaculata* [6] and *D. enderleini* [14] with wing pads bearing minute setae. It differs from *D. tenebrosa* [6] with margins of wing pads with regularly longest spaced setae.

The margin of caudal plate in *Diaphorina gardeniae* sp. nov. bearing fifteen pointed lanceolate setae on each side and also four simple long setae on each side. It differs from others species with number of lanceolate setae: five + five at tip, then three or four, then two and two more on widest segment in *D. solani* [6], 8-10 rather long sectasetae in *D. albomaculata* [6], apex somewhat truncate and bearing eight rather long setae on each side (a group of 16 at tip) in *D. tenebrosa* [6], 30 slender lanceolate setae on each side (a group of 60) in *D. enderleini* [14]. Tarsal arolium in *Diaphorina gardeniae* sp. nov., triangular and petiolate fan-shaped. It is close to *D. enderleini* [14], widened apically with a very short petiole. Anus ventral in *Diaphorina gardeniae* sp. nov., with circumanal ring close to anal margin, bag-shaped. It differs from *D. solani* [6] with circumanal ring circular close to posterior margin. It also differs from *D. albomaculata* [6] with circumanal ring fan-shaped with deeper depression in middle. It also differs from *D. tenebrosa* [6] with circumanal ring apple-shaped and it is vestigial in *D. enderleini* [14].

6. CONCLUSION

Diaphorina gardeniae sp. nov. newly described is associated with *Gardenia erubescens* (Rubiaceae); it is morphologically different from others species the *Diaphorina* genus. Specific characters were described on forewing with sub-opaque membrane, densely maculated with five clear spaces present at the apical margin, one at apical margin in each cell, r_1 , r_2 , m_1 , m_2 and cu_1 ; highly remarkable by a broad yellowish area occupying almost the first half part of anterior surface and end part of posterior surface of subcostal cell; genae cones short, almost rectangular, wider than long, tips rounded; male proctiger with lateral lobes very large, broadly rounded in middle, apical margin truncated; paramere slender, apex surrounded by a cluster of small setae, directed upwards, inner surface bearing small, numerous setae, directed downwards; female subgenital plate triangular with the posterior half bent upward and roundly pointed at apex, middling invaginated ventrally near base; margin of caudal plate of the last instar larvae bearing fifteen pointed lanceolate setae on each side and also four simple long setae on each side.

This study enriched the biodiversity of jumping plant lice the *Diaphorina* genus from Cameroon. This study also made it possible to inventory the potential pests of African medicinal plants.

7. ACKNOWLEDGMENTS

We sincerely thank Laboratory of Zoology the Higher Teachers' Training College the University of Yaounde I for its best work conditions and collections conservation. We thank also Pr YANA Wenceslas for the preliminary identification of the psyllid species of the collection from Adamawa Region. This research was conducted without any funding source.

REFERENCES

- [1] Burckhardt, D. and Queiroz, D.L. (2020). Neotropical jumping plant-lice (Hemiptera, Psylloidea) associated with plants of the tribe Detarieae (Leguminosae, Detarioideae). *Zootaxa*, 4733(1): 1–73.
- [2] Hodkinson, I.D. (2009). Life cycle variation and adaptation in jumping plant lice (Insecta: Hemiptera: Psylloidea): a global synthesis', *Journal of Natural History*, 43(1): 65–179.
- [3] De Leon J.H., Setamou M., Gastaminzo G.A., Buenahora J., Caceres S. & Yamamoto P.T. (2011). Two separate introductions of Asian Citrus Psyllid populations found in the American Continents. *Annals of the Entomological Society of America*, 104: 1392-1398.
- [4] Burckhardt D., Ouvrard D., Queiroz D. & Percy D., (2014). Psyllid host-plants (Hemiptera: Psylloidea): resolving a semantic problem. *Florida Entomologist*, 97(1): 242-246.
- [5] Capener A. L. (1970). Southern African Psyllidae (Homoptera)-2: Some new species of *Diaphorina* Löw. *Journal of the Entomological Society of Southern Africa* 33: 201–226.
- [6] Hollis D. (1987). A new citrus-feeding psyllid from the Comoro Islands, with a review of the *Diaphorina amoena* species group (Homoptera). *Systematic Entomology*; 12: 47-61.
- [7] Burckhardt D. and Mifsud D. (1998). Psylloidea (Hemiptera) of the Arabian Peninsula. *Fauna Arabia*; 17:7-49.
- [8] Burckhardt D., Zoya Yefremova Z., and Yegorenkova E. (2015). The jumping plant-louse *Diaphorina teucarii* sp. nov. (Hemiptera, Liviidae) associated with *Teucrium* (Lamiaceae) and its parasitoid *Tamarixia dorchinae* sp. nov. (Hymenoptera, Eulophidae) from the Negev desert, Israel. *Zootaxa* 3920 (3): 463–473.
- [9] Aléné D. C., Latar Vernyuy N., Djieto-Lordon C. & Burckhardt D. (2021). *Diaphorina pfanderiae* Aléné and Burckhardt sp. nov. (Hemiptera: Psylloidea: Psyllidae) and its association with ants on *Ozoroa pulcherrima* (Anacardiaceae). *Journal of Natural History* 55 (27-28), pp. 1649-1662
- [10] Mveyo Ndankeu Y. P., Dayang L. D., Mapon Nsangou I., Magne Ngando S., Dzokou V. J., Yana W. and Tamesse J. L. (2023). *Diaphorina strychnos* sp. nov. (Hemiptera: Liviidae), a new species of psyllid associated with *Strychnos innocua* Delile, 1826 (Loganiaceae) in Cameroon. *Journal of Entomology and Zoology Studies*; 11(3): 08-13.
- [11] Suchel J.B. (1988). Les climats du Cameroun. Thèse de Doctorat d'Etat. Université de Saint Etienne, 4 volumes, 1188 p.
- [12] Letouzey, R. (1986). Etude Phytogéographique du Cameroun. Lechevallier, Paris, France, Pages: 511.
- [13] Burckhardt D., Queiroz D.L., Rezende M.Q., Queiroz E.C. & Bouvet J.P. (2012). The capsicum psyllid *Russeliana capsici* (Hemiptera, Psylloidea), a pest on *Capsicum annuum* (Solanaceae) in Argentina and Brazil. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 85: 71-78.

A New Species of Diaphorina Genus (Hemiptera, Psyllidae) from Cameroon: Diaphorina Gardeniae Sp. Nov. Associated with Gardenia Erubescens (Rubiaceae)

- [14] Aléné D. C, Djiéto-Lordon C. & Burckhardt D. (2011). Unusual behaviour-unusual morphology: mutualistic relationships between ants (Hymenoptera: Formicidae) and *Diaphorina enderleini* (Hemiptera: Psylloidea), associated with *Vernonia amygdalina* (Asteraceae). *African Invertebrates*; 52(2): 353-361.
- [15] Dayang L.D., Dzokou V.J. and Tamesse J.L. (2025). The new jumping plant-louse species: *Diaphorina dangoensis* sp. nov. (Hemiptera, Psyllidae) associated with *Strychnos spinosa* (Loganiaceae) in Cameroon. *Journal of Biodiversity and Environmental Sciences*; Vol. 26, No. 4, p. 81-93.
- [16] Ossiannilsson, F., (1992). The Psylloidea (Homoptera) of Fennoscandia and Denmark. *Fauna Entomologica Scandinavica*, 26, 1–346. [E. J. Brill, Leiden, Netherlands]
- [17] Adjanohoun E.J., Ahyi M.R.A., Aké Assi L., Dan Dicko L., Daouda H., Delmas M., De Souza S., Garba M., Guinko S., Kayonga A., N’Golo D., Raynal J.L., Saadou M. (1980). Contribution aux études ethnobotaniques ET floristiques au Niger: médecine traditionnelle ET pharmacopée. Paris, Agence de coopération culturelle ET technique (Acct), p. 105, 106.
- [18] Nacoulma-Ouedraogo O.G. (1996). Plantes médicinales ET pratiques médicales au Burkina Faso: cas du plateau central. Thèse de doctorat, Faculté des Sciences ET Techniques de l’université de Ouagadougou, Burkina Faso, p. 214-288.

Citation: Dayang Louis Djakbé, et al. A New Species of Diaphorina Genus (Hemiptera, Psyllidae) from Cameroon: Diaphorina Gardeniae Sp. Nov. Associated with Gardenia Erubescens (Rubiaceae). *International Journal of Research Studies in Zoology*. 2025; 9(1):55-63. DOI: <https://doi.org/10.20431/2454-941X.0901006>.

Copyright: © 2025 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.