



## Taxonomic study of *Brachynema virens* (Klug, 1845) (Heteroptera: Pentatomidae) in Kurdistan region - Iraq.

Nabeel A. Mawlood<sup>1</sup> , Banaz S.Abdulla<sup>2</sup> , Mudhafar I. Hamad<sup>3</sup>

<sup>1</sup>College of Agriculture / Salahaddin University

<sup>1</sup>[Nabeel\\_akm57@yahoo.com](mailto:Nabeel_akm57@yahoo.com)

<sup>2</sup>College of Education / Salahaddin University

<sup>2</sup>[Banaz.Sdiq77@yahoo.com](mailto:Banaz.Sdiq77@yahoo.com)

<sup>3</sup>Erbil Polytechnical Univ./ Technical Institute / Khabat

<sup>3</sup>[mudhafarh@gmail.com](mailto:mudhafarh@gmail.com)

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### ABSTRACT

*This study deals with taxonomy of *Brachynema virens*(Klug, 1845)which collected from different localities of Kurdistan region-Iraq, including Erbil, Suleimanya and Duhok Governorates from the mid of April to the end of August2014.Some important parts ,metathorax scent gland, male and female genitalia have been illustrated and drawn .The results showed that the evaporatoria metathoracic scent gland well defined ;pygophore slightly longer than broad; paramere somewhat T-shaped; Spermathecal bulb round, without finger-like processes.Localities, date of collection and host plants were mentioned.*

**Keywords:** Taxonomy, *Brachynema virens* , Kurdistan region -Iraq.

## دراسة تصنيفية للنوع *Brachynemavirens* (Klug, 1845)

### (Heteroptera: Pentatomidae)

#### في إقليم كردستان - العراق

نبيل عبد القادر مولود<sup>1</sup> ، بناز صديق عبد الله<sup>2</sup> ، مظفر أسماعيل حمد<sup>3</sup>

<sup>1</sup>كلية الزراعة / جامعة صلاح الدين - أربيل

<sup>1</sup>Nabeel\_akm57@yahoo.com

<sup>2</sup>كلية الزراعة / جامعة صلاح الدين - أربيل

<sup>2</sup>Banaz.Sdiq77@yahoo.com

<sup>3</sup>المعهد التقني / خابات / جامعة أربيل التقنية

<sup>3</sup>mudhafarh@gmail.com

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#### الملخص

أجريت دراسة تصنيفية *Brachynema virens*(Klug) تم جمعها من مناطق مختلفة من إقليم كردستان -

العراق تضمن أربيل ، سليمانية ودهوك ولفتره من منتصف نيسان ولحد نهاية آب / ٢٠١٤ .

دلت نتائج الدراسة بأن غدد الرائحة في الصدر الخلفي نامي بشكل جيد . الصفيحة العجزية أطول قليلا من عرضها .

بصلة المستودع المنوي كروي الشكل خالية من البروز . القطعتين الجانبيتين للسوءة الذكرية بشكل حرف T .

تم توضيح ورسم بعض الأجزاء المهمة وخاصة غدد الرائحة في الصدر الخلفي ، الصفيحة العجزية والسوءتين الذكرية

والأنثوية . ذكرت مناطق وتاريخ الجمع والعوائل النباتية لهذا النوع .

الكلمات الدالة : تصنيف ، النوع *Brachynema virens* ، إقليم كردستان - العراق .

## 1. Introduction

The genus *Brachynema* Mulsant & Rey, 1852 (Pentatomidae: Pentatominae: Carpocorini) is composed of four Palearctic species: *B. cinctum* (Fabricius, 1777), *B. germarii* (Kolenati, 1846), *B. purpurea marginatum* (Rambur, 1839) and *B. signatum* (J) [1]. It is a typically Mediterranean genus of big-sized (green bugs) which was, as far as known, is mainly linked to Chenopodiaceae and other halophilous plants. It was revised by [2]. A key to the subspecies of *B. purpurea marginatum* (*B. p. triguttatum* Fieber, 1870; *B. p. hypocrita* Putto, 1887; *B. p. purpurea marginatum* (Rambur, 1839) and *B. p. kerzbnieri* Ribes & Pagola-Carte, 2007) was provided by [3]. [4] In his study on Hemiptera distributed in Iraq recorded *B. virens*. This species was originally described from Egypt, but is recorded also from Algeria, Tunisia, South France, South Russia, Caucasus, Turkistan, Yemen and Syria [5], abundant and pests of pistachionuts in the pistachio plantation areas of Iran orchards of Rafsanjan region in Iran [6]. Widely distributed in Turkey [7 and 8], Pakistan [9], Italy North Africa, Ukraine, the Middle East, Central Asia, and China [10]. The purpose of this paper is to describe and drawing important parts of this species, determine general distribution in different localities of Kurdistan region, and recorded the date of collection and host plants.

## 2. MATERIAL AND METHOD

Samplings were carried out during the period May until August 2014 for morphological study and determine the true bug *B. virens* in different localities of Kurdistan region including Erbil, Suleimanya and Duhok Governorates. Different sampling equipment's including hand picking, sweeping net, and trap methods were used. Collected specimens were put in ethanol 70% for identification and morphological study in suitable time. Locality and date of collection are recorded. The male genitalia were dissected by removing and boiling pygophore in 10% solution of KOH for 25-30 minutes following the method described by [11]. After eliminating excess KOH with water, the paramer and aedeagus were removed and inflated, and studied under compound microscope. For examining the female genitalia, the abdomen was removed and boiled in 10% solution of KOH for 15, and spermathica was exposed by partially removing the terga as described by [9]. All the measurements are in millimeters. The measurements of various parts of the body were taken with the help of an ocular micrometer. The adult specimen's pictures were taken using a digital camera. To

illustrate the metathoracic scent complex, male and female genitalia, a 0.1 rapid pen was used, and the length of the part are measured by using of linear micrometer.

### 3. RESULTS AND DISCUSSION

**Brachynema virens**(Klug, 1845) synonyms: germarii(Kolenati,1846); anabasis (Becker, 1867); biplaga(Walker, 1867); flavomarginata (Jakovlev, 1871); griseus (Jakovlev, 1871); melanota Jakovlev, 1874.

**Body:** **Photograph (1)** nearly shield shaped, green color except lateral margins of pronotum and apex of scutellum yellowish green,

**Head:** Head longer than broader, somewhat triangular; paraclypei with straight lateral margin longer than clypeus, paraclypei apixes close to each other and enclosing clypeus in front; antocular distance more than remainder of head, antocular distance 1.00-1.17 mm, remainder of head 1.0-1.12 mm, interocellar distance 1.0-1.1mm; interocular distance 1.3-1.5mm; antennae five segments, 2<sup>nd</sup> antennal segment is the longest ones, 3<sup>rd</sup> antennal segments is the shortest ones, length of antennal segments I 0.6-0.8 mm , III 1.5- 1.9 mm, IIII 0.7-1.1mm, IV 0.96-1.38 mm, and V 1.2-1.4mm; antennal formula II>V>IV>III>I; labium long, reaching hind margin of middle coxae, length of labial segments I 1.2-1.4mm , II 1.30-1.45 mm, III 0.85-0.90 mm, and IV 0.50-0.75 mm, Labial formula IV<III<I<II.

**Thorax :** Pronotum broad, more than 2X as wide as long and distinctly longer than head ; width of pronotum 5.6-7.0 mm, length 12.3-2.5mm; anterior angle toothed, humeral angle lacking black spots pointed, lateral margin sinuate; scutellum 2X as long as broad, length of scutellum 4.5-5.5 mm, width 2.6-3.0 mm, apical lobe distinct, apex acute; evaporatoria of metathoracic scent gland well defined, ostiolar peritreme ovate, elongate; membrane of hemelytra longer than abdomen; apex scutellum – apex abdomen including membrane 3.7-4.1. mm

**Abdomen:** Connexiva well expose at repose; male body size length (12.5-12.8) mm, width 5.2-5.5mm; female body size length 13.8-14 mm, width 5.5-5.7 mm.

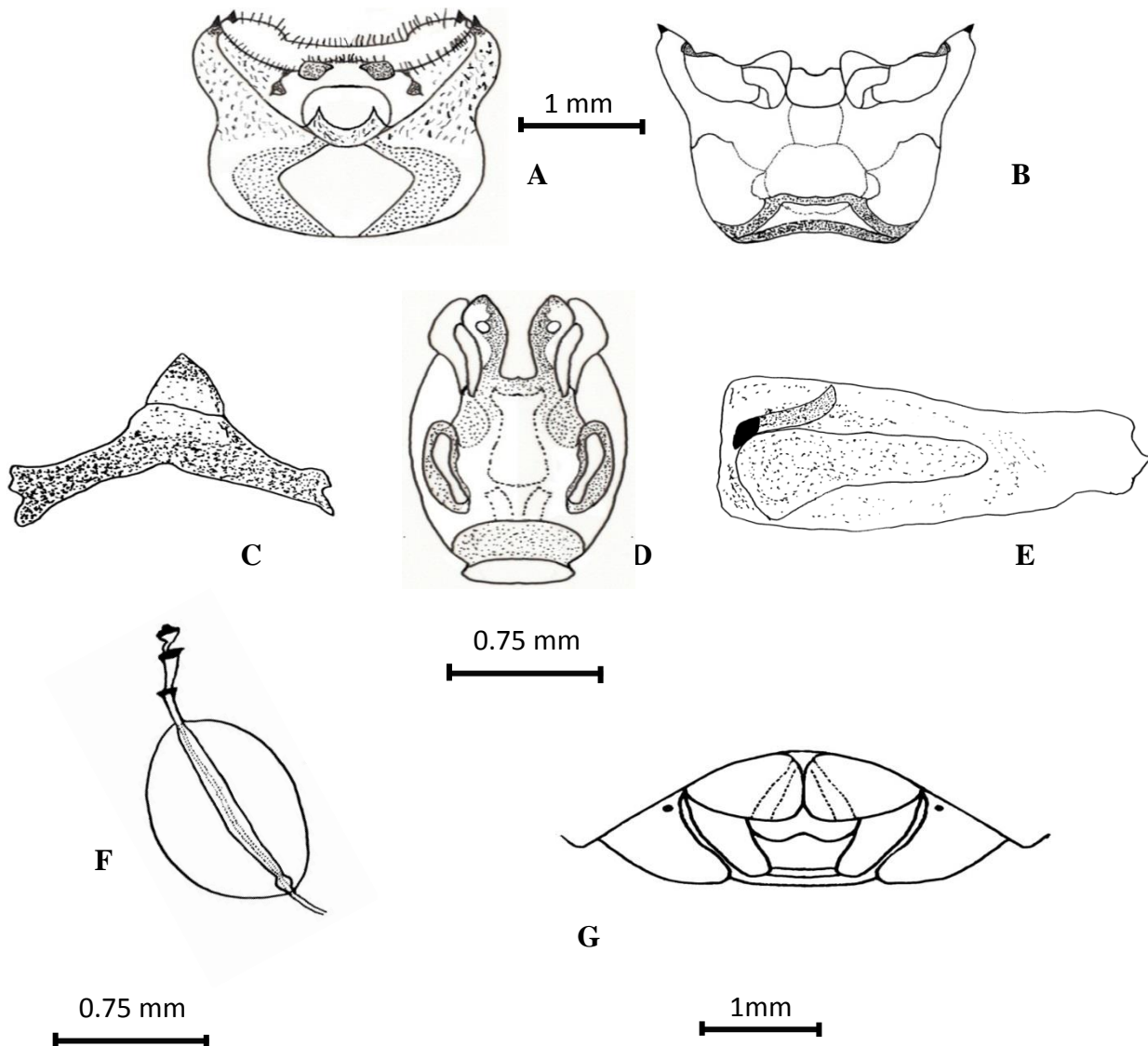
**Male genitalia:** The male genitalia present the most important taxonomic characteristics used to distinguish between the different taxa. pygophore (Fig.13-B) slightly longer than broad, ventroposterior margin with medially concave, cup shaped cavity, dorsoposterior margin with

sallow cavity, sinuate, lateral lobes of pygophore prominent, posterolateral angles acute; paramere (Fig.13-C) somewhat T-shaped, comprising three parts, foot, stem and blade, stem long, moderately broad, blade elongate, apex of blade pointed, outer margin, concave, sinuate, inner margin convex; inflated aedeagus (Fig.13-D) dark brown, with a prominent dorsal membranous conjunctival appendage, pair of ventral membranous appendage, vesica straight, short not reaching to posterior margin of dorsal membranous conjunctival appendage.

**Female genitalia:** (Fig.13-E) 1<sup>st</sup> gonocoxa usually broad, somewhat triangular, with convex posterior margin, closer to each other, 2<sup>nd</sup> gonocoxa distinctly broader than long, with posterior margin medially concave, 8<sup>th</sup> paratergite, elongate, triangular with posterior margins concave, 9<sup>th</sup> paratergite elongate, not reaching to fused posterior margin of 8<sup>th</sup> paratergite, Spermathecal bulb (Fig.13-F) round, without finger-like processes, with proximal spermathecal duct distinctly longer than distal spermathecal duct.



**Photograph (1):** *Brachynema virens* (Klug, 1845) (4X)



**Fig. (1):** *Brachynema virens*(Klug, 1845). (A) Pygophore ventral view; (B) Pygophore dorsal view; (C) Paramere; (D) Aedeagus; (E) Metathoracic scent gland;(F) 8<sup>th</sup> and 9<sup>th</sup> abdominal segments;(G) Spermatheca.

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#### AUTHOR



**Nabeel A. Mawlood:** Dep. of plant Protection , College of Agriculture , University of Salahaddin/ Erbil Kurdistan Region - Iraq : Specialist : Entomology - Insect Taxonomy. \*BCS. : Plant Protection , Agriculture , Mosul University/Iraq (1980).\*MSc. Plant Protection , Agriculture ,Baghdad University /Iraq (1985) \*Title of Thesis :Taxonomic study of the blowflies (Diptera : Calliphoridae) in middle of Iraq .\*PHD : Plant Protection, Agriculture ,Baghdad University / Iraq(2001). \*Title of Thesis Taxonomic study of the beetles Family Dermestidae ( Insecta : Coleoptera ) in Iraq.