

CONTRIBUTION TO THE KNOWLEDGE OF THE GENUS
CHALCOPHORELLA KERR. 1903(COLEOPTERA: BUPRESTIDAE) IN
THE NORTH OF IRAQ (KURDISTAN REGION)

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ABSTRACT

In this study an illustrated key for the identification of the Iraqi species of the genus *Chalcophorella* Kerr. is given with information about general distribution for each species. Information is also given about period of collection, plants on which the specimens were collected. The real host plant if they are available and known are also given referring to the previous works.

Key words: Coleoptera, Buprestidae, *Chalcophorella*

INTRODUCTION

The Buprestidae of Iraq has been very poorly studied and is known only from a few faunal lists. The first list made by Holdhous (1919) identified 16 species of jewel beetles, while Obenberger (1926,1930,1934,1935,1936,1937) within his six volume catalogue (Coleopterorum catalogue) mentioned about 51 species and subspecies distributed in Mesopotamia .Since the publication of Obenbergers work there is no catalogue for the Buprestid fauna of Iraq but from time to time a few species were recorded by various authors such as (Sage,1961; Hussain,1963 ; Derwesh,1962,1965 ; Kaddou,1967 ; Shalaby *et al.*,1970 ; Knopf,1971 ; Khalaf and Al-Omar,1974 ; Swailem *et al.*,1974 ; Selim *et al.*,1975 ; Abdul-Rassoul,1976 ; Al-Ali,1977 ; Bily, 1980 ; Abdul-Rassoul *et al.*,1988; and Ismail,1994) and the only work that deals with general morphology of this family in Iraq made by Ali (2007) without the Genus *Chalcophorella*, therefore there is need for detailed study and preparing identification key for the species of this genus . It is hoped that this contribution will be a step towards a (Buprestid fauna) of the Iraq and at the same time, will stimulate the publication of further Collections.

MATERIALS AND METHODS

Area Description

Iraqi Kurdistan regarded as a mountain region, bounded by the N. and N.E frontiers of Iraq, with Turkey and Iran respectively. The region includes some mountain valleys where the elevation falls well below the 500m contour, the climate of Kurdistan characterized by wide diurnal and annual ranges of temperature with a higher annual rainfall, The mountains above 1800m level are snow-bound for several months and snow often falls in the valleys. The vegetation here does not begin to develop much before the end of March and the main growing period is from April to June onwards.

Survey and Morphological study

Specimens were collected from the different parts of Kurdistan governorates (Erbil, Sulaimanyia, Dohuk) during April 2008 to the end of November 2008 by the beating and sweeping net or directly with hands on trees, after that specimens were killed then pinned,

The Knowledge of the Genus *Chalcophorella*

labeled and prepared for identification, Dried specimens of *Chalcophorella* spp. were relaxed in warm water for about 20 minutes, then dissected into several large parts, which were further softened and cleared of non-chitinous material in a 10% solution of warm KOH. The genitalia of species were dissected. This was carried out by pulling the genitalia through the opening between the last plates. The specimens were examined by using a binocular microscope and all diagrams were made with the aid of camera Lucida and measurements were done with an ocular micrometer. The scale of figures was fixed for all diagrams with 1mm.

RESULTS AND DISCUSSION

Genus *Chalcophorella* Kerr.

Kerremans, 1903, wytism. Gen. fasc. 12, bupr. p. 79

Type species: *Buprestis stigmatica* SchÖenherr

The genus *Chalcophorella* belonging to the subfamily Chalcophorinae Lacordaire 1857 but it has been recently transferred to the subfamily Chrysochroinae Laporte, 1835 and according to Bellamy (2003, 2008) the genus *Chalcophorella* include three subgenera as follows:

subgenus *Chalcophorella* Kerremans 1903

subgenus *Rossiella* Obenberger 1942

subgenus *Stigmatophorella* Toyama 1986

The genus *Chalcophorella* is represented in Iraq by only four species (Ali 2007) *C. stigmatica* (SchÖenherr, 1817), *C. bagdadensis* (Laport and Gory, 1836), *C. quadrioculata* (Redtenbacher, 1843) and *C. morgani* Théry, 1925. Only three of them has been collected and studied in this paper.

key to the species of genus *Chalcophorella* in Kurdistan region.

1. Compound eye separated from the anterior edge of the prothorax (Fig 2a., 3a), pronotum with levigated spaces mesally (Fig 2c., 3c). Elytra black or dark its base with white hollow surrounding with two dark spots (Fig 2d., 3d.). Mentum irregular (Fig 2b.) metacoxal plate distinctly notched with sparse foveae and slant or straight apex (Fig 2g.), wedge cell closed with long apex (Fig 2e., 3e.) male genital basal plate delicate (Fig 2h.) and parameres with or without constriction near apex (Fig 2h., 3h.)..... 2
- Compound eye very close to the anterior edge of the prothorax (Fig 1a.), pronotum rough without levigated spaces mesally (Fig 1c.). Elytra bronze or brown with two irregular white foveae, one at the base large and the other small near apex (Fig 1d.). Mentum straight (Fig 1b.) metacoxal plate distinctly notched with numerous foveae and straight apex (Fig 1g.), wedge cell closed with short apex (Fig 1e.), male genital basal plate vast and parameres constricted near apex (Fig 1h.)..... *C. stigmatica*
- 2- Pronotum with two unequal black spots at each side, one large and one small (Fig 2c.) Elytral base with two approximate black oval shaped spots located within the white halo (Fig 2c.). Apex of last abdominal sternite in female with notch (Fig 2f.), parameres wider at the base without constriction near apex (Fig 2h.) *C. bagdadensis*
- Pronotum without black spots (Fig 3c.) Elytral base with two separate black circular shaped spots located within the white halo (Fig 3d.) . Apex of last abdominal sternite in female without notch (Fig 3f.), Parameres with constriction near apex (Fig 3h.)..... *C. quadrioculata*

Wand Kh. Ali

Chalcophorella stigmatica (SchÖenherr, 1817)
Buprestis stigmatica SchÖenherr, Syn.Ins.I,1817P.232

Synonym:

Buprestis quadrinotata Klug,1829
uprestis lefebvrei Laport &Gory,1836
Buprestis quadrimaculata Redtenbacher,1867
Chalcophorella biimpressa Pic,1916
Chalcophorella smoliki Obenberger, 1936

General distribution: Extending from Perisa and Syria westwards at least to Albania and Dalmatia (Obenberger, 1926 ; Niehuis,1989), Sardinia, Greece,Turkey, Cyprus,Syria,Lebanon, Israel, Jordan, Egypt, Georgia(Volkovitsh,2004).

Distribution in Iraq: Dohuk, Mousl and Sulaminyia during May and June (Kheri,1974 ; Al-Ali,1977),Erbil during June (Mohammed *et al.*,2006) also specimens were collected by the author from Erbil (Choman, Koesinjac,Nazanin and Shaqlawa) during June and July, Sulaimanyia (Doukan) during June. Dohuk (Zawita) during June.

Host plant: Almond, *Prunus amygdalus*, Apple, *Pyrus malus* (Kheri,1974 ; Al-Ali,1977); *Paliurus* spp.(Mühle *et al.*2000) ; *Quercus aegilops* (Mohammed *et al.*2006) also adults were captured by the author on Pear, *Pyrus communis* and Peach, *Prunus persica*.

Chalcophorella bagdadensis (Laporte&Gory,1836)
Buprestis bagdadensis Cast.& Gory, Monogr.I,1836,p.125

Synonym:

Chalcophorella amarensis Obenberger 1942
Chalcophorella aureoscripta Mandl& Pochon 1957
Chalcophorella berhauti Mandl&Pochon 1957

General distribution: Mesopotamia and Baghdad,Iraq (Obenberger,1926)and the ssp. *freyi* is recorded from localities in Iran (Bily,1983).

Distribution in Iraq: Mousul, Baghdad, Kut ,Wasit during March-July (Kheri,1974 ; Al-Ali,1977; Abdul-Rassul *et al.*,1988) Dohuk, Sarsang during March, April and June (Knopf,1971 ; Saad and Ameen,1983) also specimens were collected by the author from Erbil (Askikalak, Nazanin, Koesinjac), Dohuk (Zawita) and Sulaimanyia (Bazean) during April, June and July.

Host plant:*Morus alba*, *Fraxinus* and wild pistachio (Knof,1971)Turpentine tree, *Pistacia mutica*, Fig, *Ficus carica*, Apricot, *Prunus armenica* (Kheri,1974 ; Swailem and Al-Marroof,1981) Mulberry and elm (Al-Ali,1977; Saad and Ameen,1983) also adults were captured by the author on Turpentine tree, Apple, Almond, Oak, *Fraxinus* and some wild plants.

Chalcophorella quadrioculata (Redtenbacher,1843)
Buprestis quadrioculata Redtenbacher.Russegg.Reise II,1843,P.993

Synonym: *Chalcophorella akbesiana* Cobos,1957

General distribution: Asia minor and Syria (Obenberger,1926) Turkey(Niehuis,1989).

Distribution in Iraq: Erbil-Khanzad during April (Knopf,1971) Mousl and Dohuk during March-June (Kheri,1974; Swailem and Al-Marroof, 1981; Saad and Ameen, 1983) also specimens were collected by the author from Erbil (Koesinjac),Sulaimanyia(Khormal,Beara) during June and July.

Host plant: Willow (Knopf,1971)Apricot, Apple, Pistacia and turpentine tree (Kheri, 1974) Apple, Mulberry, Pomegranate, Willow (Al-Ali, 1977; Saad and Ameen,1983) also adults were captured by the author on Almond,Apple and Pear.

The Knowledge of the Genus *Chalcophorella*

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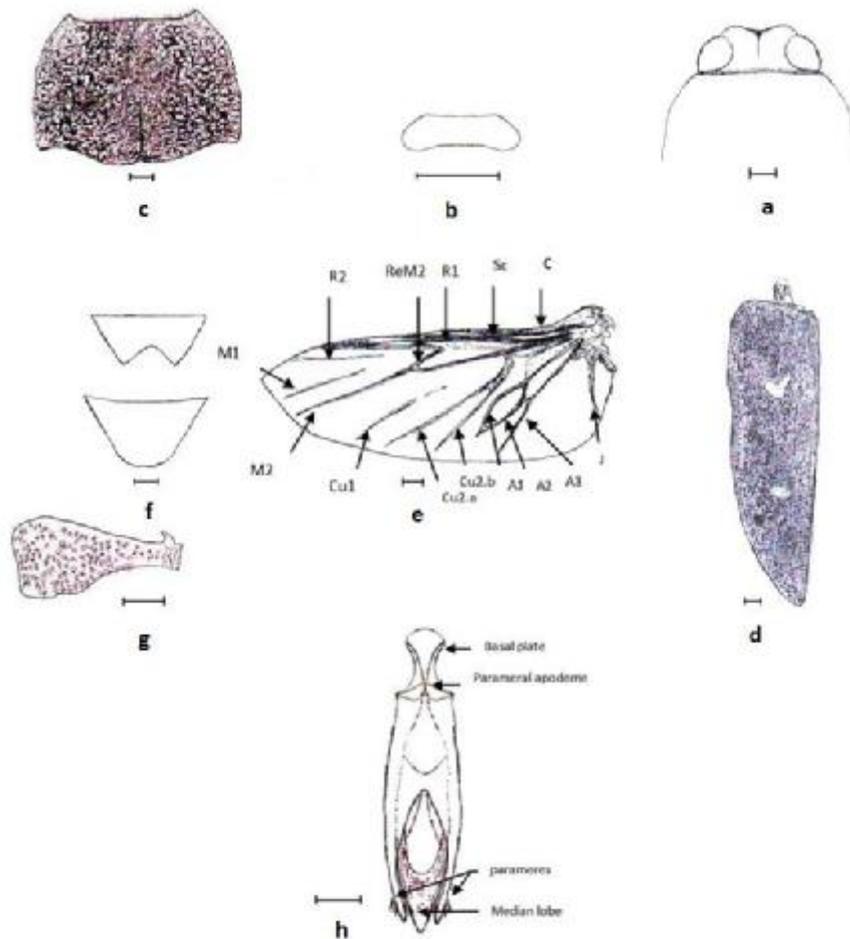
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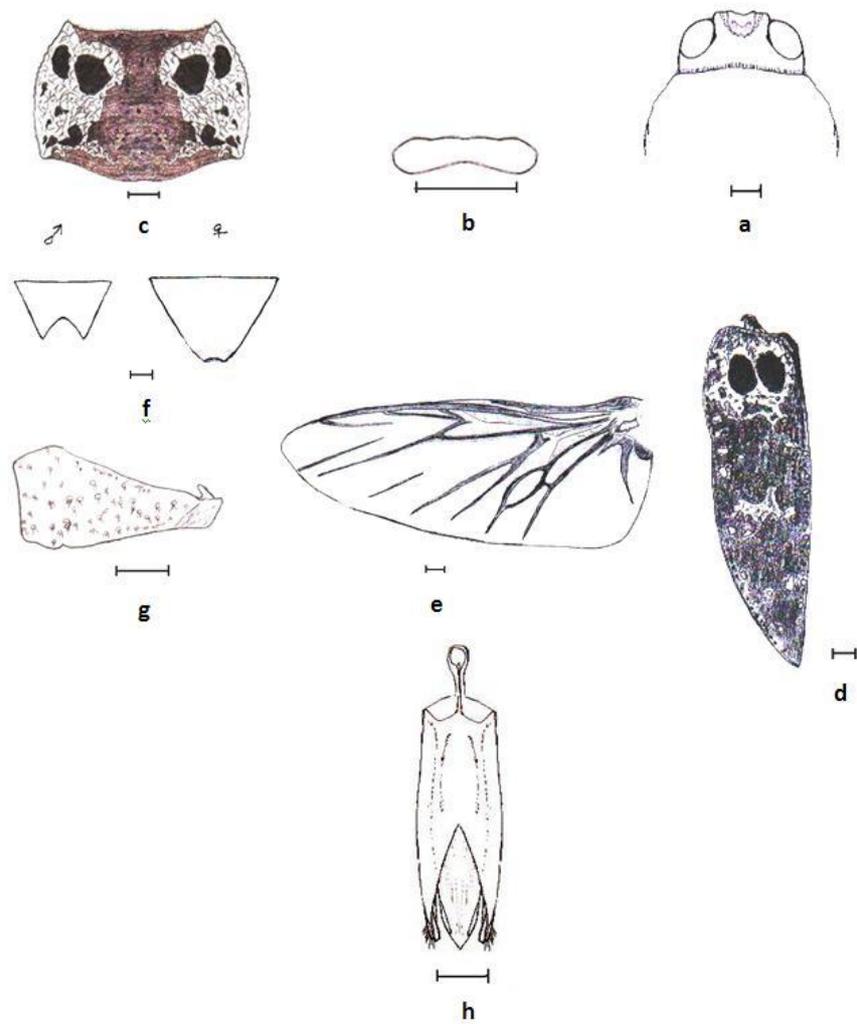
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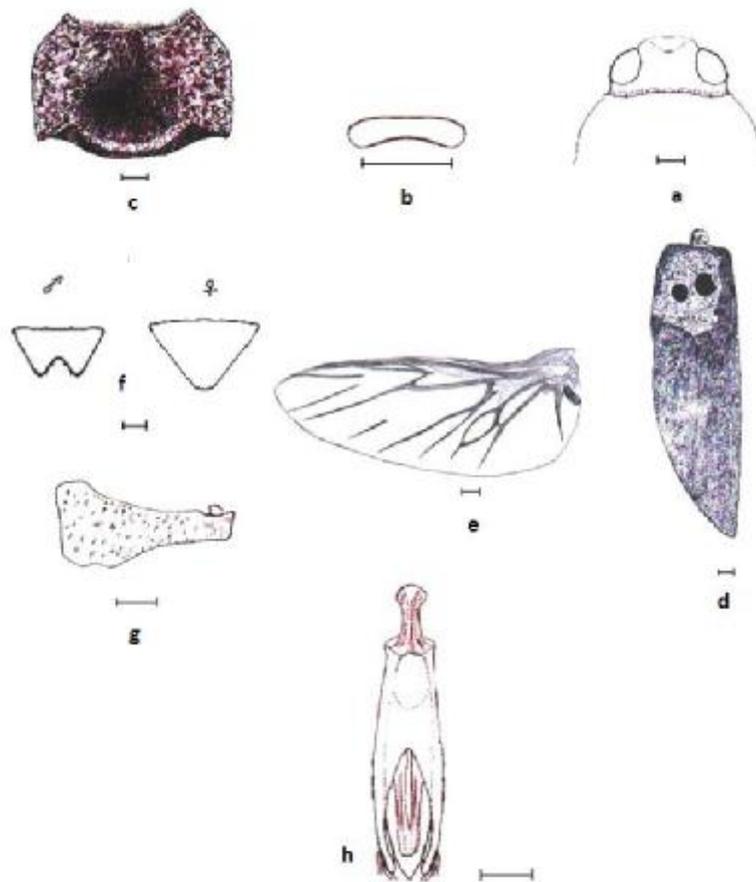


Fig(1): *Chalcophorella stigmatica* (Schönherr)
a. Head ; **b.** Mentum ; **c.** Prothorax **d.** Elytra **e.** Hind wing ; **f.** Last abdominal sternite
g.Hind coxal plate ; **h.** Male genitalia

The Knowledge of the Genus *Chalcophorella*



Fig(2): *Chalcophorella bagdadensis* (Cast. &Gory)
a. Head; **b.** Mentum ; **c.** Prothorax ; **d.** Elytra; **e.** Hind wing ; **f.** Hind coxal plate ;
g. Last abdominal sternite ; **h.** Male genitalia



Fig(3): *Chalcophorella quadrioculata* (Redtenbacher)
a. Head; b. Mentum ; c. Prothorax ; d. Elytra; e. Hind wing ; f. Hind coxal plate ; g. Last abdominal sternite ; h. Male genitalia

**اثرء المعلوماء ءول الءنس 1903 *Chalcophorella* Kerr.
(Coleoptera:Buprestida) في شمال العراق- إقليم كوردستان**

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الءلاصة

تم إعطاء مفتاح موضح بالرسوم لتشءيص الأنواع المتواجدة في العراق و التابعة للءنس *Chalcophorella* مع المعلوماء الءاصة بالتوزيع الءغرافي لكل نوع إضافة للمعلوماء الءاصة بتاريخ الءمع و النباتات التي جمعت عليها مع الإءارة إلى العائل النباتي حسب المعلوماء المتوفرة.