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## DESCRIPTION OF DARKLING BEETLE, *OPATROIDES PUNCTULATUS* BRULLE, 1832 FROM ERBIL PROVINCE - IRAQ (COLEOPTERA: TENEBRIONIDAE: OPATRINAE)

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### ABSTRACT

*A detailed description of darkling beetle, Opatroides punctulatus Brulle, 1832 (Coleoptera: Tenebrionidae) from Erbil province - Iraq is presented here. Distinctive characteristics for this species are recorded and photographed, posterior margin of labrum shallowly emarginated, laterally densely setose. Mandibles high sclerotized, bidenticates. 4<sup>th</sup> segment of maxillary palps cup shaped. Antenna 10 segmented, the segments 6-9 rounded nearly same sized. Anterior margin of Pronotum strongly concave. paramers parallel, apical part acute and bare.*

**Key words :** *Coleoptera , Tenebrionidae , Description , Opatroides punctulatus ; Iraq.*

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### 1. INTRODUCTION

Tenebrionidae often commonly referred to as darkling beetles, is a family of beetles with some 20,000 described species worldwide. Of these, around 8,000 species are found in the Palaearctic Region (1). The family is a large with representatives in all regions. They are diverse in color and

form and occupy a wide variety of habitats. Darkling beetles play an extraordinarily important ecological role in arid and semi-arid ecosystems as they are the dominant detritivores (2). A few tenebrionids are primarily saprophagous, which occur in a great variety of habitats, being ideal objects for studies of ecological biogeography in different environments, such as forests, steppes, deserts and urban habitats(3). Many tenebrionids are especially adapted to sands such as deserts, riversides and coastal dunes (4).The higher classification of Tenebrionidae follows Watt ( 5, 6,7,8 and 9).There is yet no comprehensive cladistic analysis encompassing all the higher taxa of Tenebrionidae. A key to all species of *Opatroides* is provided and *O. punctulatus* Brulle, is confirmed to be a widely distributed species, consisting of three geographical subspecies: the nominal form *O. punctulatus* , described from Greece, occupying the coast of the Mediterranean Sea (10). *O. punctulatus* is one of important species of the family which abundant in Europe (Greece, Italy, Russia & Malta), North Africa (Algeria, Egypt Lybia, Morocco & Tunisia), and Asia (Iraq, Jordan, Lebanon, Kazakhstan, Yemen, Cyprus, Syria, Turkey, Saudi Arabia, India).Undoubtedly, like many Tenebrionids including *Blapstinus*, *O. Punctulatus* are facultative opportunistic ant associates (11) . (12,13 and 14 ) mentioned the presence of the species as pest on poplar, apricot, tobacco and weeds.

The aim of the present work is to a detailed description of *O. punctulatus* which recorded from the Erbil province –Iraq. Coloured photographs of the species and important parts are also included.

## **2. MATERIALS AND METHODS**

The present paper is based on 25 specimens, which collect by hand from the carion and carcasses during 2015 in some localities of governorate (Grdarash, Qushtapa and Murtk) - Iraq. The specimens were placed in boiling water for 15-20 minutes to soften their parts then the mouthparts and abdomen were separated then put in 10% KOH for 15-20 minutes for dissolve the lipids. After that placed in distilled water for 3-4 minutes in order to neutralize the alkali. The parts are placed in distal water and dissected under binocular microscope( 15, 16, 17).A digital camera (Ucma series microscope camera) was used to photographing the important parts. The measured proportions of body parts are given in points of an eyepiece linear micrometer in a binocular microscope. The species identified with the help of available literature of (18 ),and the help of Dr. Roberto Rattu from Universita degli Studi di Cagliari -Italy ,then confirmed by Dr. Muhamaad S. Abdul- Rassoul, from Iraq Natural History Museum.

### **3. RESULTS**

#### **3.1. Description**

*Opatroides Punctulatus* Brulle ,1832

#### **3.2. Body (Fig. 1a,b and c)**

Black, Semioval ,dorsoventral compressed, covered with a densely regular punctures and without pubescence. Length 6.6-8.8 mm.

#### **3.3. Head**

Black abruptly narrowing behind the eyes, 8-2 mm long, surface without pubescence. Frons black, concave. Frontal suture and Fronto -clypeal are absent, center of posterior margin extremely convex. Eyes small flattened black completely divided by the epistomal canthus eyes. Labrum (Fig.2a) yellow,nearly cup shaped,posterior margin shallowly emarginated, surface with short moderately brown setose, laterally densely brown setose. Mandibles(Fig. 2b) dark brown triangular, high sclerotized bidentate , apical denticle slightly longer than the lower one, surface of mandible bare. Maxillae (Fig.2c) brown,apical part of lacinia dark yellow highly setose, distal part of galea hook like, 2<sup>nd</sup> segment of maxillary palps elongated oval, sparsely brown short setose, 2 times as long as the 2<sup>nd</sup> , 4<sup>th</sup> segment cup shaped ,anteriorly expanded, bare 1.4 times as long as the 3<sup>rd</sup>. Labium (Fig. 2d) brown , submentum nearly rounded ,apical margin slightly concave, 2<sup>nd</sup> segment of labial palps oval 1.1 times as long as 3<sup>rd</sup> segment. Antennae(Fig.2e) dark brown, 10 segmented, length 2.5-3.0 mm, 1<sup>st</sup> -5<sup>th</sup> segments tubular shaped, 2<sup>nd</sup> segment 1.3 times as long as the 1<sup>st</sup> segment, segments 6-9 rounded nearly same sized, 10<sup>th</sup> segment triangular,1.1 times as long as the 9<sup>th</sup> segment .

#### **3.4.Thorax**

Pronotum (Fig.2f) Black , densely short brown setose and punctured, anterior margin strongly concave, posterior margin slightly concave at the middle, lateral margin arcuate, anterior and posterior angles acute .Elytra elongated oval, black , 4.8-5.4 mm long densely punctate, surface with eight rows of punctures. Epipleura short abruptly ending before apex of elytra . Fore legs brown ( Fig.2 g ) , Fore femur cylindrical widest at the middle,1.1 times as long as tibia. Fore tibia elongated triangular,outer margin with 3-4 very short spines , fore tarsus 5 segmented, tarsus 1<sup>st</sup> -4<sup>th</sup> cup shaped, 5<sup>th</sup> segment tubular,1<sup>st</sup> tarsus 1.2 times as long as 2<sup>nd</sup>, 2<sup>nd</sup> - 4<sup>th</sup> tarsus same length , 5<sup>th</sup> tarsus three times as long as 4<sup>th</sup>, inner margin of the tarsus 1<sup>st</sup>-4<sup>th</sup> with 4-6 very short spines , tarsus 5<sup>th</sup> tarsus with 7-8 spines. Claw simple moderate curved. Middle leg

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similar to for leg except coxae rounded, each outer and inner margin with 4 short spines. 1<sup>st</sup> tarsus 1.4 times long as 2<sup>nd</sup>, 5<sup>th</sup> tarsus five times long as 4<sup>th</sup>. Hind leg similar to the for leg except coxae bot shaped, outer margin of tibia bar ,tarsus four segmented, 1<sup>st</sup> segment 2.2 time long as the 2<sup>nd</sup> .

### 3.5. Abdomen

Black, semioval shape consist of five visible segments, 1<sup>st</sup>-4<sup>th</sup> abdominal sternites rectangular shaped , 1<sup>st</sup> and 2<sup>nd</sup> abdominal sternites same length, 2<sup>nd</sup> sternite 1.2 time as long as 3<sup>rd</sup> , 3<sup>rd</sup> sternite 1.3 time as long 4<sup>th</sup>. 5<sup>th</sup> sternite oval.

### 3.6. Male genitalia

Adegaus(Fig.2 i , j ) dark yellow – dark brown, 2.0 -2.7 mm long , slightly curved. Paramere parallel, short 0.5-0.9 mm long, apical part acute and bare , the space between the apical 0.15-0.25 mm. Phallobase elongated oval , 1.4 – 2.0 mm long, three times as long as the paramere . Medial lobe tubular distinctively shorter than the parameres. Tegmen ( Fig.2 h )yellow, bilobed , posterior part nearly cup shaped, Anterior inverted V-shaped lateral arms long tubular shaped .



a



b

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c

Figure 1. *Opatroides punctulatus* Brulle

a- Male : Dorsal view b. Lateral view c. Ventral view (10X)



1 mm a



1 mm b



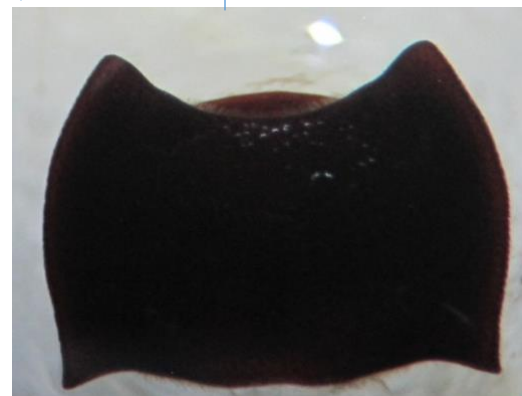
1 mm c



1 mm d

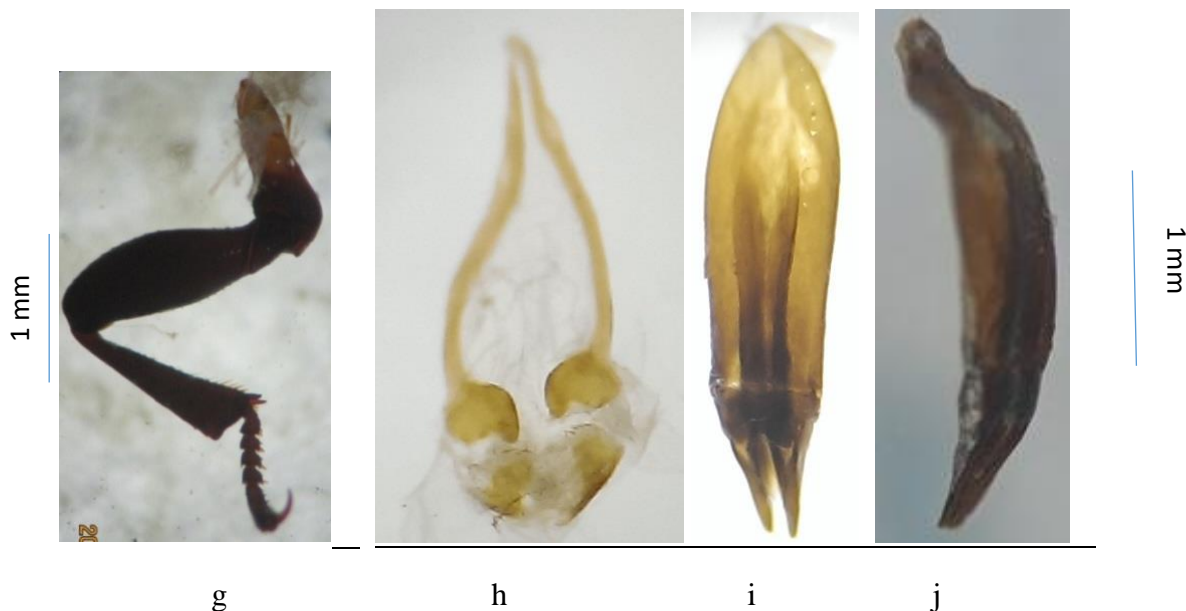


1 mm e



f 1 mm

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**Figure 2. *Opatroides punctulatus* Brulle**

**a. Labrum   b. Mandible   c. Maxilla   d. Labial palp   e. Antenna   f. Pronotum   g. Fore leg   h. Spicula gaster   i. Aedeagus (Dorsal view)   j. Aedeagus (Lateral view).**

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