

**New species of the genus, *Protaetia* Burmeister, 1842 from Iraq
(Coleoptera: Scarabaeidae :Cetoniinae)**

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ABSTRACT

The new species *Protaetia*kurdistanica sp. nov. are described and illustrated from Iraq. The differences between the species and closely related species is discussed. Diagnostic characters of the new species is figured. The materials examined are deposited in the Museum of plant protection department. College of Agriculture, Salahaddin University –Erbil-Iraq.

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1. INTRODUCTION

Protaetia is a genus of beetles of the family Scarabaeidae and subfamily Cetoniinae of superfamily Scarabaeoidea, the family number exceed 30,000 species of beetles worldwide often called Scarabs or Scarab beetles and then genus *Protaetia* occurring primarily in Asia and containing over 300 species (Mittal, 2000). Ratcliffe (1991) study the key of genus *Protaetia* in Floridae and there are five genera in United state, Canada and Northern Mexico. Thomas (1998) mention the 250 species of genus *Protaetia* in the Oriental Australian and Palearctic region. The adults of Cetoniinae feed on flower and fruits, thin popularly referred to as flower beetles, the larvae scarab beetles

white grubs caused damage to the roots of cereal, legumes, small fruit plants, shrubs thin caused damage to field crops and fruit trees (Mehta et al., 2010). The classification of this family is fairly unstable with numerous competing theories, many of subfamilies listed probably will not be recognized very much linger. Some of scarab beetles are used in the biological control of dung and dung flies (Machatschke, 1972). Lawrence and Britton (1991) indicated the classification of superfamily. Arnetts (1968) mention the hierarchical level of families and subfamilies. In Iraq 10 species in six genera of the family listed by Derwesh (1965), and Al-Ali (1977) recorded six species.

2. MATERIALS AND METHODS

2.1. Experimental Animals

Sixteen adult Wister male albino rats (8-10 weeks old) and weighing (200-270 gm) were conducted in this study. They were housed in plastic rat cages (56 x 39 x 19 cm) in groups of eight rats per cage in a room with controlled temperature of (22 ± 1 °C), 12 hours light and 12 hours dark by using an automated light-switching device, in the animal house of Biology department, Faculty of Science, Soran University; under supervision and approval of local scientific committee and animal care rules. Rats were fed with standard laboratory chow and allowed drinking water *ad libitum*.

2. Experimental design

Type material: (♂) (Holotype) Iraq-Kurdistan region: Erbil- Rania, 360 Km N Baghdad, 18-May.2015 from Milk thistle *Silybummarianum* L., Hozan Q. Hammamurad leg., Paratype (8 ♂♂7 ♀♀): from same locality and date, the holotype is kept in the insect museum of College Agricultural- Erbil, Kurdistan region- Iraq.

Fixed tissues (liver, kidney and cerebrum) were removed from Bouin's fluid and dehydrated by a serial concentration of ethanol in ascending manner, infiltrated with paraffin

3. RESULTS AND DISCUSSION

Protaetiakurdistanica sp. nov.

Body: Oval expanded, Metallic green reddish. Length 16.1-20.5 mm, width 7.8-11.1mm.

Head: Parallel sides, elongated. Dark grassy green completely covered with Tomentum. Eyes black, rounded. Vertex brightly green, flat, with low dense of fine punctures. Coronal suture present. Frons densely punctured. Clypeus flat, rectangular, laterally wrinkled, middle part simply punctured. Anterior margin

of clypeus with shallow, narrow impression along entire margin. Labrum (Fig. 1a) nearly globular, pale yellow, sparsely pale yellow setose, anterior margin moderately concave. Mandible (Fig. 1b) dark brown, high sclerotized, apical part bidentates, inner denticles shorter than the outer. Maxilla (Fig. 1c) dark brown, cardo triangular, sparsely yellow setose, distal part of galea rectangular, moderately sclerotized, apical part densely pale brown setose, lacinia membranous, apical part densely pale brown setose, 2nd segment of maxillary palp square shaped 2 times as long as 1st segment, 4th segment oval elongated, 1.5 times as long as 3rd segment. Antenna (Fig. 1d) lamellate, dark brown, surface yellow setose, 1-4 segment cup shaped, 5-8th segments nearly equal in size, 9-11 segment lamellate, 11th segment 1.1 times as long as 8th segment.

Thorax: Pronotum metallic grassy green, surface randomly irregular punctures laterally, the middle impunctate, the anterior margin moderately concave, posterior margin convex at the middle, the anterior angle slightly acute, posterior angle rounded. Scutellum grassy green, triangular, apex obtusely rounded, surface impunctate and bare. procoxal cavity close, prosternum dark brown, surface randomly irregular of fine punctures, anterior margin of prosternum strongly concave, densely yellow setose, prosternal process nearly globular densely yellow setose.. Elytra metallic green, simply punctures, bare, 1/4 of outer margin moderately concave. Epiplural dark brown, sparsely fine punctate, yellow setose. Hind wing brown, veins dark brown. Forelegs dark green, outer margin of fore tibia (Fig. 1e) triedentate, apical part with single long spur; tarsus five segmented, 1st- 4th segments cup shaped, 2nd segment 1.3 times as long as 1st segment, 2-4 segments same in length, 5th segment tubular, 1.3 times as long as 4th segment, apical part with short process;

claws long simple moderately curved. Mid legs resemble forelegs except the, mid tibia with single denticle at the middle, apical part tridenticate, with two spurs. Hind legs resemble forelegs except, coxa plate shaped, outer margin of hindtibia with single denticle, apical part with two short spurs.

Abdomen: metallic grassy green, oval, with six segments, surface sparsely yellow setose and randomly irregular punctures, 2nd -5th abdominal sternites same in length. 6th abdominal sternite nearly cup shaped, anterior margin convex, posterior margin rounded, surface sparsely yellow setose, . 6th tergite dark brown, cup shaped, anterior margin nearly straight, posterior slightly concave. Spiculumgaster absent.

Male genitalia: Aedeagus (Fig. 1g,h) brown, moderately curved, basal hood pale brown. Length 0.6-0.7 mm, apical part low sclerotized nearly hook shaped. Tegmen (Fig. 1f) pale brown, nearly Y-shaped, highly sclerotized.

Diagnosis: *Protaetia kurdistanic* sp. nov. this species differs from closely related species, *Protaetia maxwelli* Jaklby the following characters: Body length 16.-20.5 mm. Middle part of pronotum impunctate and bare. Elytra bare. Fore tibia tridenticate. Aedeagus pale brown-yellow, moderately curved, apical part nearly hook shaped.

3.3. Effect of fluoxetine on cerebrum

As shown in figure 3.9, the histological slides showed that the cerebrum of control rats have normal appearance of their structure such as layers of grey matter and normal neuronal cells, while dead pyramidal cells in second and

third layers of grey matter were observed in the sections through the cerebrum of fluoxetine-exposed rats (Fig. 8.10). It has been suggested that fluoxetine cause increasing the concentration of serotonin in synaptic cleft and vasodilation of small cerebral arteries such as branches of the anterior cerebral arteries which induced by calcium channel openers (Ungvari *et al.*, 2000). In addition, the electrophysiological studies have further demonstrated that fluoxetine inhibits different types of calcium channels in the neurons (Deak *et al.*, 2000). Fluoxetine at 0.03 mM enhanced nicotine- and choline-induced relaxations in which nicotine induced norepinephrine release from cerebral perivascular sympathetic nerves but vasorelaxation was blocked by higher concentration of fluoxetine (>0.3 mM) that is mean, the high concentration of fluoxetine cause decrease neurogenic vasodilation while low concentration of fluoxetine cause increase neurogenic vasodilation (Chen *et al.*, 2012). Furthermore, fluoxetine alters the levels and composition of brain GABA(A) receptors and reduces the responsiveness of GABA(A)-R to GABA-mimetic drugs such as pentobarbital (Matsumoto *et al.*, 2007).

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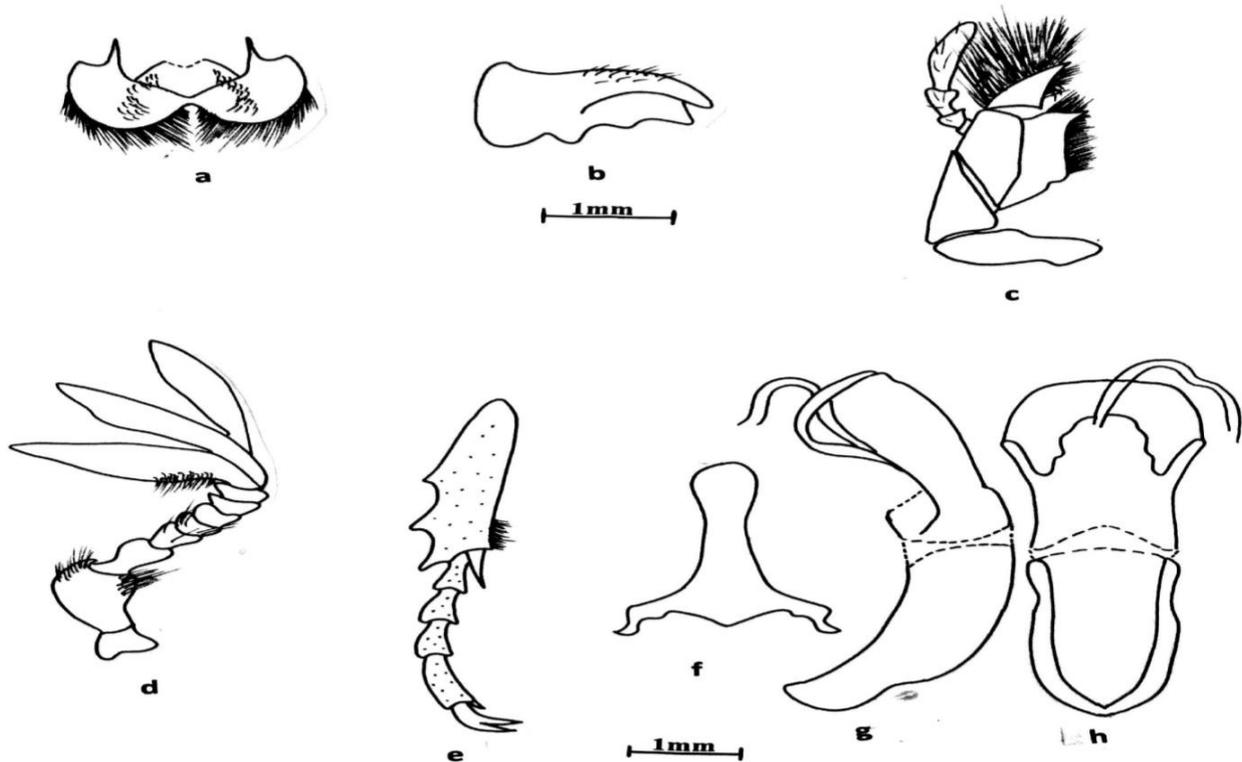


Figure:1 *Protaetiakurdistanica* sp. nov.

- a. Labrum b. Mandible c. Maxilla d. Antenna e. Foretibia f. Tegmen g. Male genitalia lateral view h. Male genitalia dorsal view.

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