



A NEW RECORD OF EUROPEAN CHAFER BEETLES, *AMPHIMALLON MAJALE* (RAZOOMOWSKY, 1789) (COLEOPTERA: MELOLONTHIDAE) FROM IRAQ

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Abstract

A new species of European chafer beetles, *Amphimallon majale* (Razoumowsky, 1789) had been recorded for the first time from Iraq. The members of taxon are easily to be distinguished, where the apical part of mandibles with two denticles. Antenna nine segmented ending in a unilateral three lamellate club sub-equal in length and shorter than the stem. Foretibia flattened with three teeth on outer edge. Parameres regularly curved before apex in lateral view, apex with small tooth toward ventral side.

Key words : *Amphimallon majale*, A new species, Coleoptera, Melolonthidae.

Introduction

Melolonthidae Samouelle, 1819 is one of large family of Scarabaeoidea, There are currently about 750 genera and 11.000 species recorded worldwide (Houston and Weir, 1992). The family is easily to be distinguished, antennae are lamellate apex; the fore legs are adapted for burrowing; large fore coxae and tibiae with a series of teeth; galea with strong tooth on the dorsal face (Coca-Abia and Martin-Piera 1998; Triplehorn and Johnson, 2005). The species belonging of the family are consumers or decomposers. The adults feed on leaves, stems, roots, exudates, flowers, fruits and tubercles of angiosperms, as well as on leaves and roots of gymnosperms. Some adults are predators of other insect species. Usually the larvae develop in the soil, consuming roots or humus, as well as rotting tree trunks and the larvae of a few species are associated with ants and termites, feeding on detritus or on immature of those insects (Endrodi, 1966; Moron, 1997, 2001, 2004). The family plays an important role in decomposition and nutrient recycling in the environment (Garcia *et al.*, 2013). The taxonomy of the family is not

well understood, despite the efforts of numerous workers (Luginbill and Painter, 1953; Vaurie, 1958; Woodruff and Beck, 1989; Coca-Abia *et al.*, 1993; Coca-Abia and Martin-Piera, 1998; Coca-Abia, 2000; Evans, 2003). *Amphimallon* Berthold, 1827 form one of most important genus in Western Palaerctic Rhizotrogini by the number of describe taxa (Baraud, 1992). This genus composed of more than 16 species according to the most important works dealing with the Western Palaerctic Melolonthidae (Medvedev, 1951; Baraud, 1992). The phylogeny of fifty-eight cockchafer species of the genus proposed by (Montreuil, 2000). *Amphimallon majale* (Razoumowsky, 1789) is one of important species of the genus, the grubs feed primarily on the roots of grass and turf, and are a serious pest that can cause substantial damage, though adult beetles are not harmful (Montreuil, 2000). In Iraq there are some studies; Derwesh (1965) indicated six genera, *Anoxia* sp.; *Cyphonoxia praestabilis* Reit.; *Haplidia transversa*; *Phyllopertha* sp. nr. *Iraquanus* Arrow; *Phyllopertha* sp. and *Rhizotrogus escherichia* Brenske. El-Haidary (1972) recoded one species, *Cryptotrogus* sp.; and Al-Ali (1977) recorded one species,

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Rhizotrogus deserticola Blarch within Scarabaeidae. The main objective of this study is a detailed description of the new record of European chafer beetles, *Amphimallon majale* (Razoumowsky) from-Iraq with photographing the very important characters.

Materials and Methods

The specimens were collected from different localities of Erbil and Sulaymaniyah governorate, Kurdistan region – Iraq during March–August of 2018, using hand picking and light trap. Some specimens collected from the weeds. The specimens were placed in boiling water for 10-15 minutes to soften their parts. The mouthparts and abdomen were separated and cleared in a hot solution of 10 % KOH for 24 hours. then the parts were studied under immersion in distilled water. (Lane and Grosskey, 1993; Mawlood *et al.*, 2016). Photographs of habitus and important parts were captured through a digital camera (Ucmas series microscope camera). The body length was measured from the apex of the clypeus to the apex of the elytra, using eye piece linear micrometer and the body width was measured at the base of the pronotum (with the specimen in dorsal view). The species were identified with the help of available literature of (Baraud, 1992; Ratcliffe *et al.*, 2002). Also the species confirmed by Dr. Guido Sabatinelli, specialist of Scarabaeidae from Italian museum. Characters selected for identification are those generally easily observed, with depending on male genitalia. The specimens were deposited in the insect museum at the Department of plant protection, College of Agricultural and Engineering Science, Salahuddin University, Erbil Iraq.

Results and Discussion

Amphimallon majale (Razoumowsky, 1789)

Description

Body (Fig. 1 a, b and c)

Oval shaped, a tan colour. Length: 11.2-14.4 mm.

Head

Brown, sparsely pale yellow setolose. Eyes black, small oval shaped hidden by the anterior angle of the pronotum. Vertex and frons brown in colour, sparsely pale yellow setolose, fine punctate. Frontal carina absent. Clypeus sub-trapezoid, brown shorter than frons, abruptly widens from base, posterior margin thick and black; lateral sides arcuate and elevated in relation to the eye edge, anterior margin not sinuate at the middle. Labrum (Fig. 2a) dark brown, transverse, anterior margin moderately concave, posterior margins slightly convex, surface sparsely dark brown setose, lateral margins with

4-5 long brown setae, anterior margin sparsely setose. Mandible (Fig. 2b) high sclerotized, irregular, apical part with two teeth, outer teeth is short, Dorsal surface with setose cavity, edge of the incisor lobe smooth, slightly curved, slightly wrinkled molar lobe. Mentum dark brown, posterior edge moderately concave, surface sparsely yellow short setose. Maxilla (Fig. 2c) dark brown, cardosemio-vale bare, stipe stri angular, densely long, black setose, galea dark brown, apical part with two well developed teeth spines, 1st – 3th segments of maxillary palps cup shaped, sparsely dark brown setose, 2nd segment 2.1 times as long as 1st segment, 4th segment

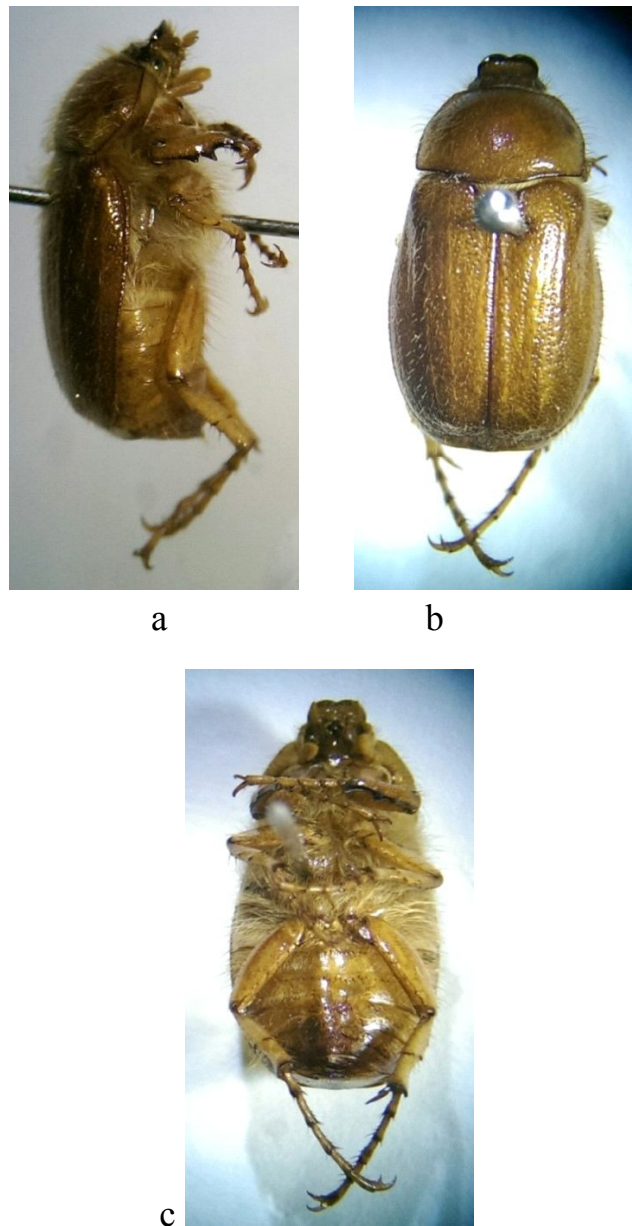


Fig. 1: *Amphimallon majale* (Razoumowsky, 1789) Male
a. Dorsal view b. Lateral view c. Ventral view;
Scale bar = 5X

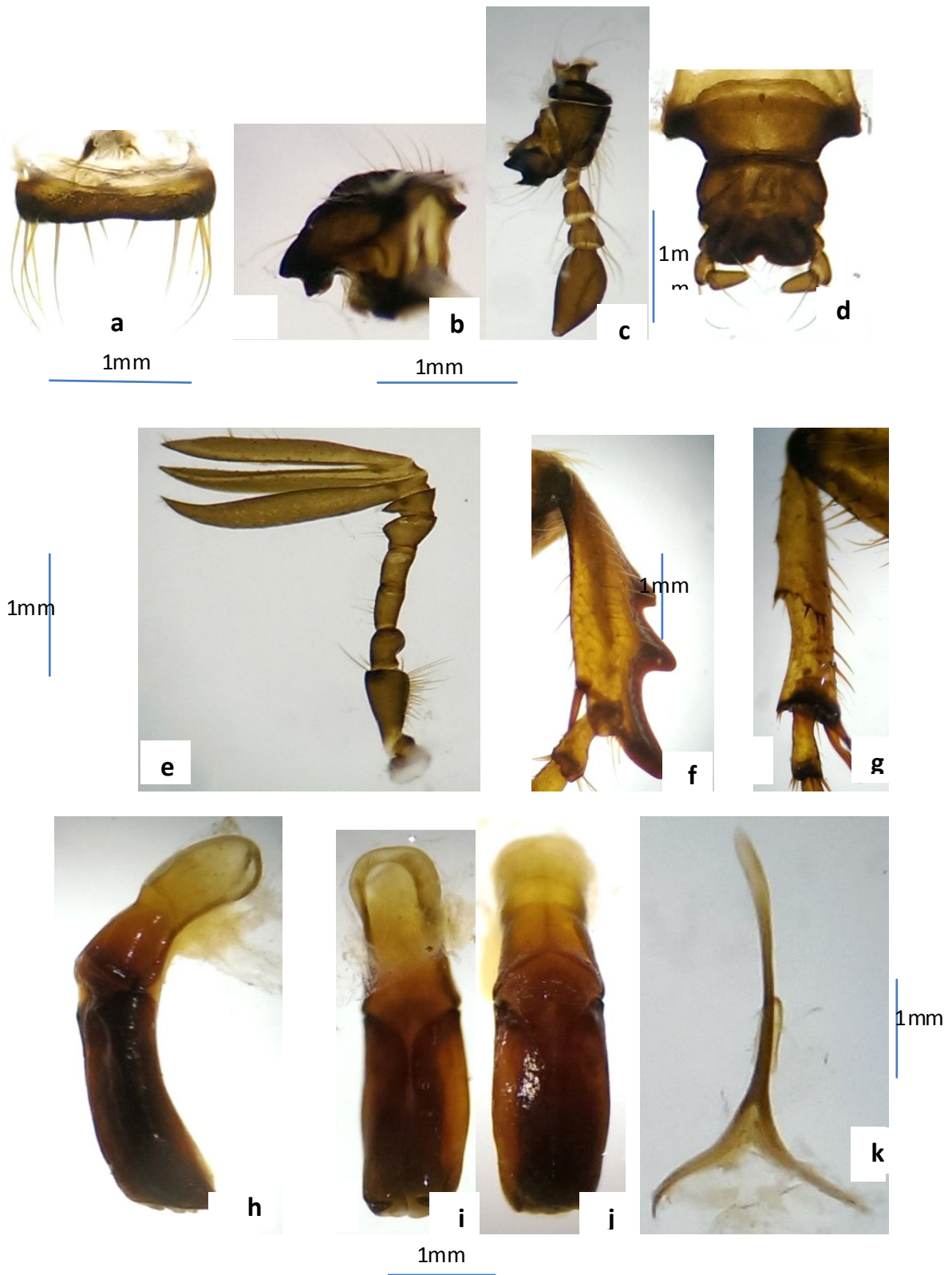


Fig. 2: *Amphimallon majale* (Razoumowsky, 1789)

a. Labrum b. Mandible c. Maxilla d. Labium e. Antenna f. Fore tibia g. Mesotibia h. Aedeagus (Lateral view) i. Aedeagus (Ventral view) j. Aedeagus (Dorsal view) k. Spiculum gastrale

oval, bare 3 times as long as 3rd segment. Labium (Fig. 2d) dark brown, Labial palps dark brown setose. 1st and 2nd segments cup shaped, 2nd segment 1.2 times as long as 1st segment, 3rd segment cylindrical, 1.2 as long as 2nd segment. Antenna (Fig. 2e) brown - dark brown, 3.6- 4.2 mm long, consist of nine segments ending in a unilateral three lamellate club sub-equal in length and shorter than the stem, the segments sparsely dark brown setose. 1st segment is the longest 2.4 times as long as 2nd segment, 2nd segments nearly oval, 1.2 times as long as 3rd segment, 3rd and 4th segments tubular shaped equal in length.

Thorax

Pronotum glabrous, surface densely pale yellow setose with scattered punctures; anterior and posterior angles obtuse with rounded apex; anterior and posterior margin of the pronotum thick and dark brown, lateral margins serrate. Scutellum brown, triangular, sparsely long pale yellow setae. Mesosternum not protruding between the middle coxae. Metaepisternum narrow more than 3 times as long as its width, surface densely yellow long setose. Elytra oval, brown, short enough to expose at least the pygidium spiracles of the 4th to 7th abdominal segments laying in almost parallel lines, elytral surface costate, costae shallow with shallow punctures, lateral margins with short, thick bristles, posterior margin rounded. Hind wings yellow, humeral callus well developed, 1st radial vein and 3rd jointed distally, median spur extending toward margin. Legs brown, forecoxae elongated oval, Protibia (Fig. 2f) flattened tridentate, apical with single spur on inner edge; Tarsal segment sparsely setose; 1st segment of fore tarsus slightly shorter than second, 2nd -4th segments nearly same length, 5th segment is the longest, 1.7 times as long as the 1st. Both claws of all tarsi with small basoventral tooth. Middle legs resemble to fore legs except coxa is conical shaped, mesotibia (Fig. 2g) with a row of short (5-6) spines at the dorsal of middle part and 3-4 spines at 2/5 of apical part, with a pair of terminal spurs located below the insertion of tarsus. Hind legs resemble to fore legs except, metacoxae boat shaped, metatibia with a pair of terminal spurs located below the insertion of tarsus, with a row of short (5-6) spines at the dorsal of middle part. 1st segment of tarsus distinctly shorter than the 2nd segment.

Abdomen

Brown-dark brown, consist of six brown visible segments, abdominal sternites without ornament and moderately pubescent, basal abdominal sternites rigidly connected. single transverse row of bristles on each sternite 2nd -5th. Pygidium triangular with round tip, densely shallowly punctated with pubescent apex.

Male genitalia

Aedeagus (Fig. 2h, I and g) Dark brown. Length 3.8- 4.6mm. Phallobase dark yellow, oval, as long as parameres. Parameres robust, more sclerotization regularly curved before apex in lateral view, (Fig. 2h), dorsally (Fig. 2i) widened, with small tooth toward ventral side in proximal portion ((Fig. 2j). Endophallus long and moderately sclerotized, joined to the parameres by simple temones. Spiculum gastrale (Fig. 2k) inverted Y- shaped, apical arm 2.2 times as long as the laterals.

Examined specimens

The specimens were collected in different localities of Erbil and Sulaymaniyah governorate (Girdarasha; Benslaw; Kasnazan) and (Kalar; Kefri) respectively during March and August of 2018. The specimens collected by hand picking and light trap; some specimens collected from the flowers of some weeds (Haory cress, *Lepidium draba* and Mustard, *Brassica alba*).

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