



RESEARCH PAPER

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Taxonomic study of the genus *Barylypa* Förster, 1869 (Hymenoptera: Ichneumonidae) in Iraq

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Abstract

The genus of *Barylypa* Förster, 1869 and *Barylypa uniguttata* (Gravenhorst, 1829) belonging to the tribe Gravenhorstiini of subfamily Anomaloninae (Hymenoptera, Ichneumonidae), collected in Wasit province, middle of Iraq, are described as a new record to fauna.

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Introduction

The family Ichneumonidae is an extremely large group of insect with about 60 000 estimated species and 42 subfamilies (Townes 1969, Coruh and Özbek, 2005). Due to their high diversity and difficulties in determination of the species, our knowledge of many taxa in this group remains incomplete (Riedel and Hansen, 2007).

The ichneumonids are parasitoids of various insect orders including Lepidoptera, Hymenoptera, Diptera, Coleoptera and even reared from spiders and other arthropod groups (Coruh and Kolarov, 2010 a, b). They are believed to be more abundant and diverse in the temperate regions than in tropical areas (LaSalle and Gauld, 1993).

Anomaloninae members are found in dry habitats, there are two tribes (Anomalonini, Gravenhorstiini) and 39 genera (Gauld, 1976; Townes, 1971), and represented by 760 species worldwide, of which 210 species occur in the Palaearctic region (Yu *et al.*, 2005). Propodeum without areas bounded by regular carinae, generally coarsely reticulate, or in a few species finely reticulate but in such species the intercubital vein is distal to 2m-cu; 2nd submarginal cell absent, intercubital vein proximal, less commonly opposite or distal to 2m-cu; distance separating posterior ocelli from occipital carina usually less than maximum ocellar diameter (Gauld and Mitchell, 1977).

The aim of the present study to provide additional information from these wasps to Iraqi fauna.

Material and methods

Collection of Specimens

44 specimens were collected material during October 2014 in cowpea fields by a standard sweeping net at various locations of Al-Zubaidya, Wasit province (fig. 1), middle of Iraq. The sampling were killed by spray insect killer and mounted on entomological pins. Specimen photographs were taken with a Samsung galaxy S4, GT-19500 and used binocular dissecting

microscope (MB. MARIOBROMA.SRL, Roma) to magnificent the morphological features.

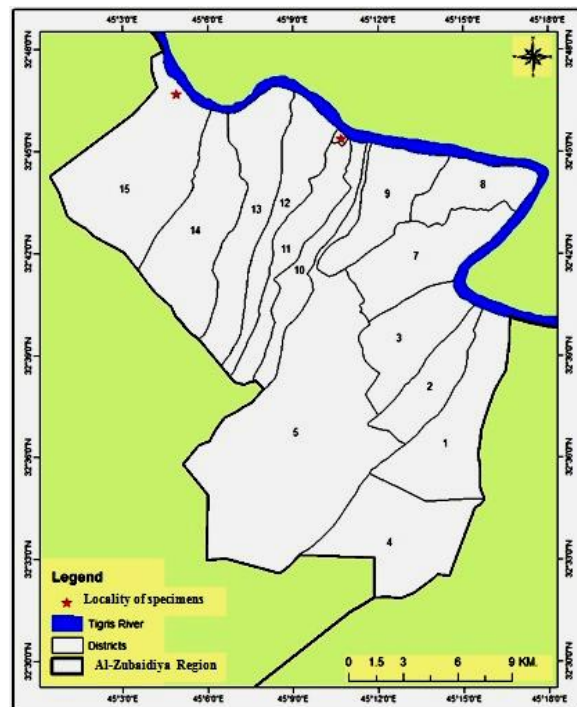


Fig. 1. Localities of collecting specimens.

Identification

Identifications were made using reliable keys and the original descriptions (Gauld and Mitchell, 1977; Chiu, 1984 and Gadallah *et al.*, 2010). The morphological terminology is mostly that of Gauld (1991). Wing vein nomenclature is based on Gauld and Mitchell (1977).

The newly collected material is deposited in the insect collection of Iraq natural history research center and museum.

Results and discussion

In the present investigations, the genus of *Barylypa* Förster and already the species of *B. uniguttata* (Gravenhorst) (Hymenoptera: Ichneumonidae; Anomaloninae) were described as a new records to the Ichneumonid wasps fauna of Iraq, this species distributed in turkey (Qoruh *et al.*, 2004) and Iran (Kolarov and Ghahari, 2005) The diagnosis characters and morphological features were given in this study.

Diagnostic characters the genus of Barylypa

According to Gauld and Mitchell (1977), the equation below is very necessary in identification of the genera of Anomaloniinae: see fig. (6)

CI (Cubital index of forewing) = length of Cu_1 between 1m-cu and Cu_{1a} / length of Cu_{1b}

NI (Nervellar index of hind wing) = length of Cu_1 between M-Cu and cu-a / length of cu-a

In this genus the CI value less than 0.6; medio-dorsally of pronotum flat or slightly concave but without an impressed transverse sulcus (fig. 5a); male with aedeagus evenly sclerotized except at extreme apex. Fore coxae smooth without carinae (fig. 7a), hind wing with distal abscissa of Cu_1 present.

B. uniguttata (Gravenhorst, 1829)

Materials: 44 specimens (males only); 7 specimens, 18.IX.2014; 10 specimens, 2.X.2014; 5 specimens, 3.X.2014; 8 specimens, 19.X.2014; 11 specimens, 20.X.2014; 3 specimen, 31.X.2014.

Distribution: Eastern Palearctic, Western Palearctic (Yu *et al.*, 2005).

Redescription of male: Body length (fig. 2) 12.0 to 14.0mm; fore wing length 6.5 to 7.5 mm; antennae length 7.5 to 9.5mm.

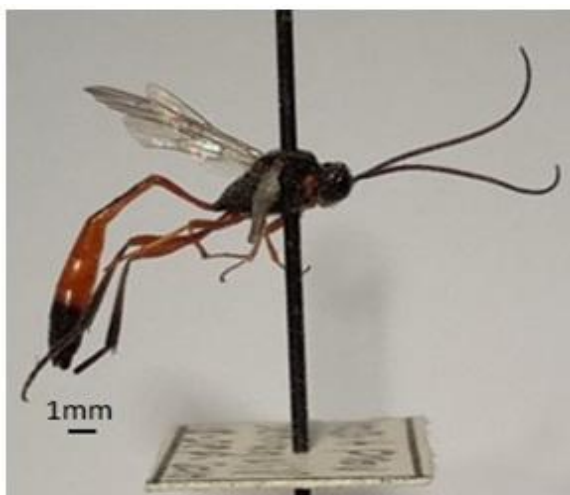


Fig. 2. Male of *B. uniguttata*.

Head (Fig. 3): Face elongated, face, lateral side and posterior view of head with medium length, moderately density, erect and silvery hairs, eyes without hairs, inner orbits converging at lower parts; clypeal suture weak, clypeus produced to a median point (Fig. 3e) with sparse, distinct and different punctures that leaves irregular interspaces; frons with sparsely different punctures, slightly concave centrally. Vertex and occiput with sparsely medium-sized punctures, vertex, occiput and gena polished (Fig. 3c, d). Ocellar triangular raised (Fig. 3b), occipital carina closely to posterior ocelli (Fig. 3d); Area behind outer orbits with small punctures that leave widely spaces (Fig. 3c); Mandible relatively short with small subapical tooth, basal portion with some brown hairs (Fig. 3e). Genae with distinct sparsely small punctures and silver long hairs. Antenna filiform (Fig. 4).

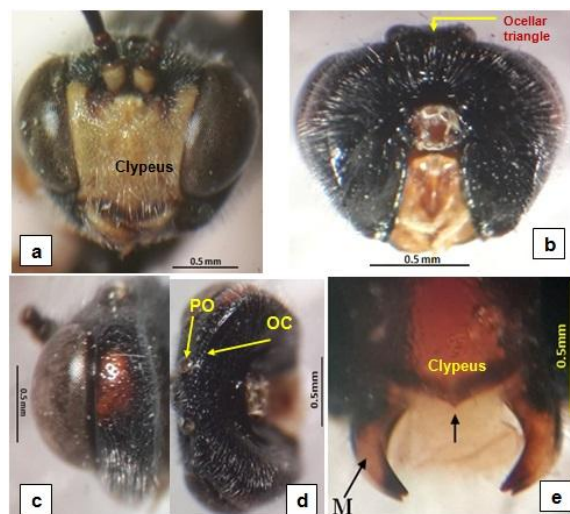


Fig. 3. Head: a, anterior view; b, posterior view; c, lateral side; d, upper part of posterior view; e, clypeus and mandibles.

PO: posterior ocellus; OC: occipital carina; M: mandible.

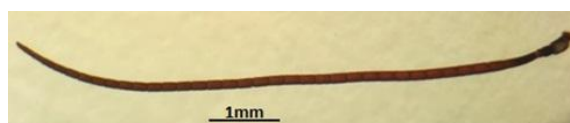


Fig. 4. Antenna.

Mesosoma (Fig. 5): Pronotum with densely size punctures and covered with short and suberect silvery hairs, dorsal surface flat; mesoscutum with dense, distinct, medium and closely punctures, hind margin with fine transverse wrinkles; scutellum with dense and medium size large; postscutellum narrow and roughly; in general the dorsal surface of thorax covered by short silver and erect hairs. Mesopleuron with punctures similar to punctures on mesoscutum surface; metapleuron evidently depressed, with rough and dense reticular wrinkles.

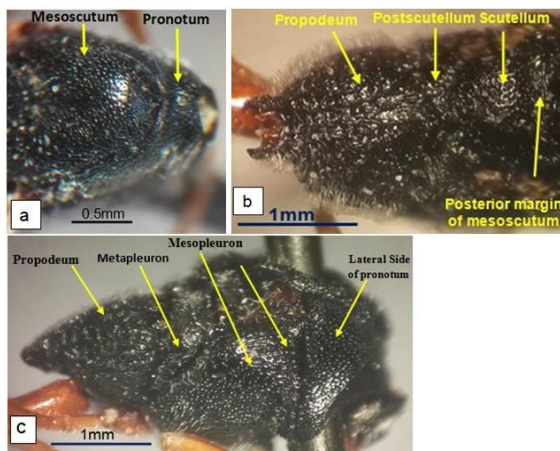


Fig. 5. Thorax, a; dorsum of anterior parts b; dorsum of posterior parts, c: lateral side.

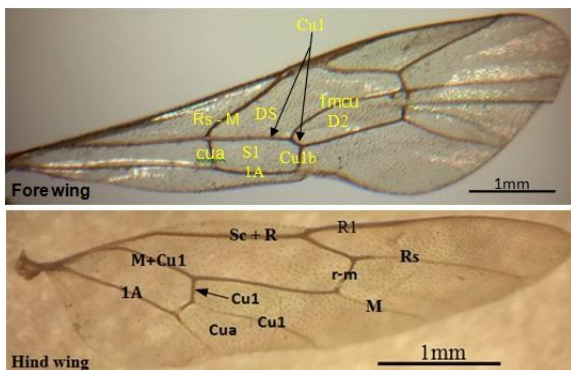


Fig. 6. Wings.

Legs comparatively slender: Front coxa without surrounding carina (fig. 7a). Middle tibia with two spurs (fig. 7b); basitarsi longer than other tarsomeres, the length of others to graduate from second to fourth, but the five tarsomere similar to length of second tarsomere. Hind coxa with distinct fine punctures; hind claws with pectinate at half base.

Dorsal of propodeum not indefinite, with dense and rough with deep and coarsely punctures composed reticular sculpture.

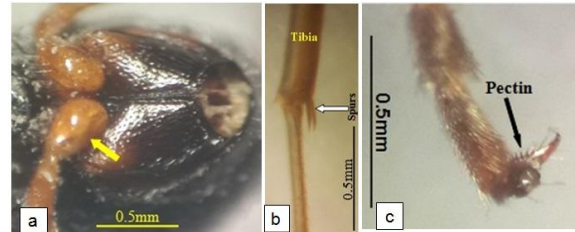


Fig. 7. Parts of legs, a: fore coxae; b: mid tibia; c: tarsal claw of hind tarsi.

Metasoma (Fig. 8 a): First abdominal spiracles located near apical segment; third gasteral tergite simple without longitudinal carina. Male genitalia (fig. 8 b): gonostyles with short, sparsely and erect hairs; volsellae fusiform shaped in ventral view; aedeagus (penis valves) with sclerotized at tip, head of penis valves closely at base and appeared as clubbed shaped.



Fig. 8. Metasoma, lateral side of anterior part (a); ventral view of male genitalia.

PV: penis valve; V: volsella; G: gonostyle; GB: gobobase.

Color: Black with exception; face under antennary pits, anterior side of scape and mandibles with exception apical part and subapical tooth, mid tibia and tarsi yellow. Upper area behind outer orbit, 1st and 2nd gasteral segments are red with exception the dorsal surface is black; third and fourth gasteral segment red, fifth gasteral segment red with large black area at posterior side of tergite.

Wings transparent, veins brown, tegulae dark brown. Fore legs red to yellowish red. Mid tibiae; coxae and trochanter red, tibiae pale yellow, 1-3 tarsomeres pale

yellow, 4 and 5 tarsomeres dark brown; hind coxae, trochanters, femur and basal half of tibiae red, apical half of tibiae black, tarsi black brown.

Variation in color: whole area behind outer orbits red; macula on lateral side of pronotum, scutellum, lateral sides of propodeum in some specimens are red.

Diagnostic characters the genus of B. uniguttata

First subdiscal cell with LA 1.0 or more times as long as Cu1 between *cu-a* and *lm-cu* thus with the antero-proximal corner about 90° hind wing with NI=1.1 (Fig. 6). Forewing length less than 12mm; lower face less than 0.75 times as broad as long, regularly and deeply punctuate (fig.3 a); clypeus produced to a median point; the face below antennary pits yellow, but Gauld and Mitchell (1977) were mentioned that face black with central and pair of very narrow lateral stripes in yellow. I think the color may be varying from region to another and less important in taxonomy.

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