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ORIGINAL ARTICLE

# A New Species of *Ammophila* Kirby, 1798 with Identification Key to Species of Ammophilini (Hymenoptera: Sphecidae: Sphecinae) in Iraq

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**ABSTRACT**
*In this study,409 specimens of Ammophilini tribe (Hymenoptera: Sphecidae: Sphecinae),collected from different region of Iraq are investigated. Thirteen species belonging to four genera were determined. Genus of Parapsammophila and six species; Ammophila barbara, A. sabulosa, A. gracillima, A. hungarica, Podalonia minax and Parapsammophila turanica are a new records to the Iraqi fauna . Identification keys to subfamily, tribes, genera, species are given.*
***Key words:*** *Wasp, Sphecidae, Sphecinae, Ammophilini, Ammophila, Duhok province.*

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## INTRODUCTION

This paper is the first of a series in which it is proposed to review the wasps of the Sphecidae, subfamily Sphecinae which are known to occur in Iraq.

The Sphecidae is a cosmopolitan family of wasps, currently there are 9660 described species distributed throughout the world [1]. Sphecidae is a diverse group of solitary wasps which may be of different shaped , size and color ;the female digs it nest in sand, soil or wood and provisions each nest cell with paralyzed prey and lays a single on it . The wasps larva feeds on the provisions, adults feed on nectar, pollen and juices containing high amount of sugar while the larvae need adults or larvae of different insect orders and Araneida[2,3,4] .

The Sphecinae wasps can be recognize by many diagnostic characters such as; gaster with cylindrical elongate petiole composed of sternum only unless it has two section as in *Ammophila* Kirby, inner orbits of eyes without notch, mandibles without a notch on externo-ventral margin, notauli on scutum absent but weak and short when present, jugal lobe of hind wing large containing an anal vein, no pygidial plate, male with 13 and female with 12 antennal segments[5,6] .

The species of Ammophilini are large wasps, long, slender gaster and usually a long petiole. It is difficult to give a clear-cut diagnosis for the Ammophilini, the absence of cerci is a consistent feature and the reception by the second submarginal cell of both recurrent veins is a nearly universal characters; exception to this wing pattern are found in *Parapsammophila* Taschenberg , *Eremochares* Gribodo and *Ammophila*, this wing feature is shared with many Sceliphronini, but the absence of plantulae in all ammophilins with exception of some species of *Parapsammophila* is a more basic distinction. Claw form in Ammophilin wasps is not diagnostic because the claws may be simple, single or double toothed; however, when present, the teeth are basal, unlike the mesal tooth of the vast majority of Sceliphronins. The ammophilin genera with two toothed claws are most easily separated from the Sphecini by the narrower apicoventral setae of hind tarsomere V and / or the reception of both recurrent veins on second submarginal cell [3,7]. The petiole and gaster characters used in separating ammophilin genera with two claw teeth from similarly dentate sphecin genera[8]. Many authors deal with many genera, which it follow this tribe such as *Podalonia*, *Eremochares*, as a subgenera in *Ammophila* [9,10,11,12,13] , while others recognized of genera[3,14] .

Diagnostic key to determination of genera in Egypt designed by [15] and revision of genera which may be found in Palearctic region[16];then used male genitalia to recognize of ammophilin species[13,17]. Guichard[18,19]was recognized genera and designed diagnostic key to species in Saudi Arabia.

Generally; the sphecid wasps fauna of Iraq have been very poorly studied and they are known only by scattered faunastic lists as follow; Beaumont studied this wasps in Iraq [20] and registered *Ammophila* (*Podalonia*) *tydei* Guillou (=*Podalonia tydei* Guill.), *A.*(*Podalonia*)*marismortui* Bytinski-Salz (=*Podalonia marismortui* Bytinski-Salz), *A.* (*Podalonia*) *ebenina* Spinola (=*Podalonia ebenina* Spinola) and *A.*(*Eremochares*) *dives* Brullé (=*Eremochares*) *dives* Brullé ), then added *A. occipitalis* Morawitz [21], *A. haimatosoma* Kohl and *A. heydeni velora* Rad. [22] to fauna of Iraq. According to above this study was suggested .

## MATERIALS AND METHODS

The adults of wasps (409 specimens) were collected by arial net through 2010- 2011 in different regions of Iraq and old specimens were get from Iraq natural history museum. The specimens are mounted and deposited in the Iraq natural history museum, the locality and date of collection were provided on the labels. The morphological terminology used herein follows that proposed by[3] . In preparation of subfamily, tribes, and genera keys the many publications used [3,13,15,16,18,23,24,25] and formulated to accordant with species of Iraq .

The following morphological abbreviations are used: flagellomere (F), arolium (A), gasteral sternite (S), gasteral tergite (T),marginal cell(MC), submarginal cell (SMC), tarsomere (t), Rv.: recurrent vein, anterior vein(av), basal vein(bv), Pronotal collar(P.C.), scutum (Sc), scutellum (St) , metanotum (Mn), propodeum (P).

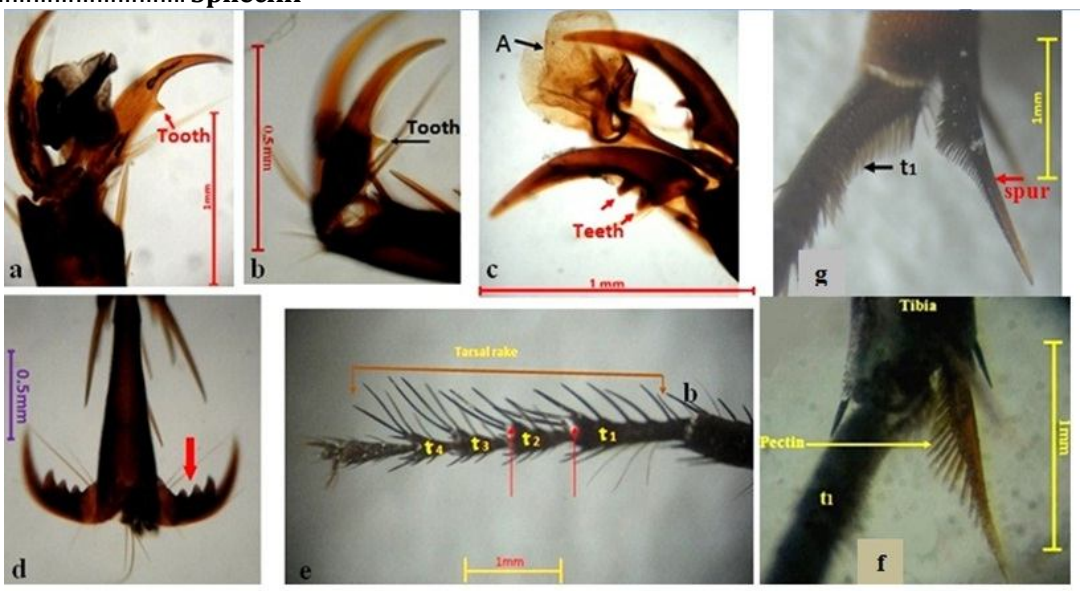
### Taxonomy

### Key to tribes of Sphecinae

1-Tarsal claws with mesal single tooth on inner margin (Fig.1a); fore leg in females without tarsal rake …….. **Sceliphronini**

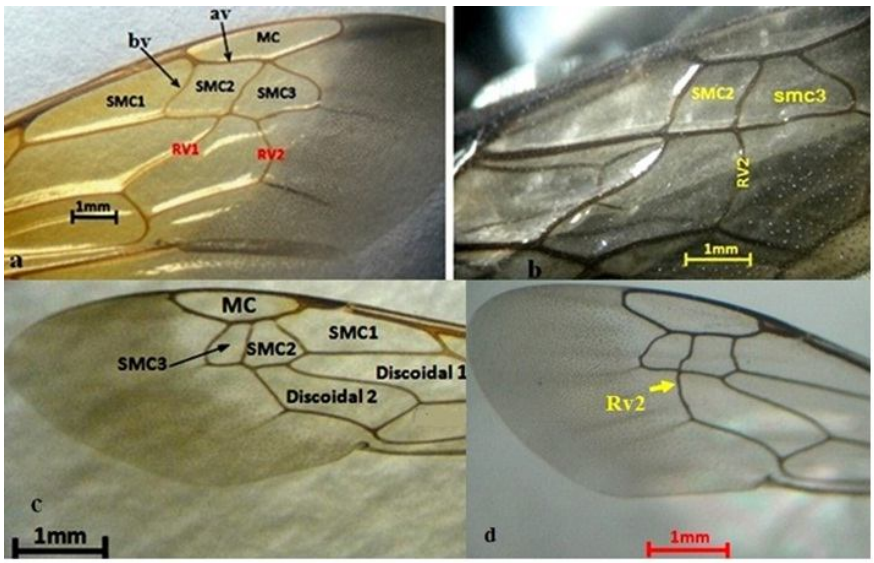
-Claws simple /or with basal single tooth or more (Fig.1b,c,d); fore leg with tarsal rake (Fig.1e) ……..... 2

2-Claws usually with double teeth or more on inner margin (Fig.1c,d); second recurrent vein (Rv2) usually received by submarginal cell III (SMC3) (Fig.2a), with exception it received between submarginal cell II (SMC2) and submarginal cell III (Fig.2b), in this case, pectin of inner hind tibial spur coarse and well spaced at least near middle (Fig1f); flagellum segments in males with Placoids (Fig3) …….. **Sphecini**




**Figure(1) leg parts of Sphecinae a-pretarsus of Sceliphronini b- Pretarsus of Ammophilini c- pretarsus of Sphecini (*Sphex flavipennis*) d-- pretarsus of Sphecini (*Prionyx kirbii*) e- tarsal rake of *Podalonia tydei* f- inner spur of hind tibia in *Podalonia* sp. g-- inner spur of hind tibia in *Ammophila* sp.**

-Claws usually simple or with single or double teeth; second recurrent vein (Rv2) usually received by submarginal cell II(Fig.2c), with exception it received between submarginal cell II (SMC2) and submarginal cell III(Fig.2d), in this case inner hind tibial spur finely and closely pectinate (Fig.1g); flagellum segments without placoids…….. **Ammophilini**




**Figure(2) Wings of Sphecinae: a-fore wing in *Sphex flavipennis* b-fore wing in *Prionyx stschurowskii* c- fore wing in *Podalonia tydei* d- fore wing in *Eremochares dives***

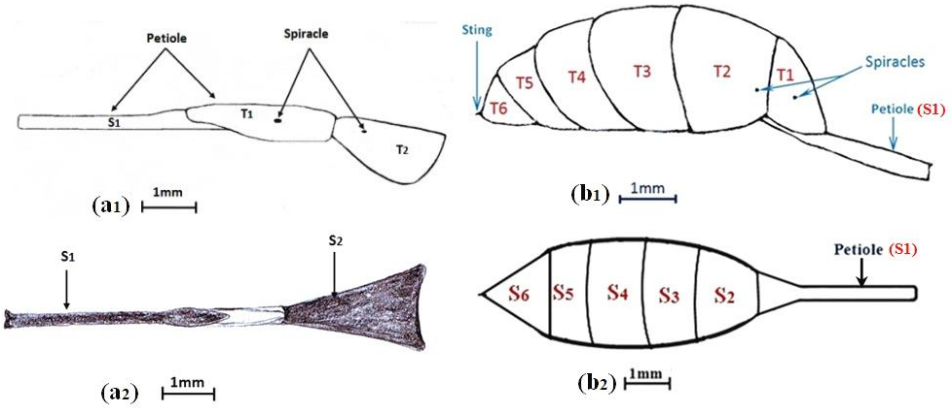



**Figure (3) a- first abdominal segments of *Ammophila* sp. b- gaster of *Podalonia* sp. 1- lateral view 2- ventral view**

## Key to genera of Ammophilini

1-Petiole consist from two segments, first gasteral sternite 1(S1) and first gasteral tergite (T1); apex of sternite 1 not reaching the base of sternite 2 (S2); seen in profile, the spiracle of T1 located at or beyond the apex of S1 (Fig.3a) …… ***Ammophila*** Kirby

-Petiole consist from first gasteral sternite 1(S1) only; apex of S1 meeting or overlapping base of S2;viewed in profile, the spiracle of T1 located before the apex of S1(Fig. 3b)…….. 2

2-Petiole socket nearly completely surrounded by propodeal tergite(Fig.4a); mesosternum with forward projection process (Fig.5); claws with two basal teeth …….. ***Eremochares*** Gribodo

-Petiole socket open (Fig.4b); mesosternal process absent; claws simple or / with single or double teeth …….. 3

3-Tarsal claws without or with a single tooth ; inner hind tibial spur coarsely pectinate (Fig.1f ) …….. ***Podalonia*** Fernald

-Tarsal claws with one or two teeth; pectin of inner hind tibial spur fine (Fig.1g) …….. ***Parapsammophila*** Taschenberg

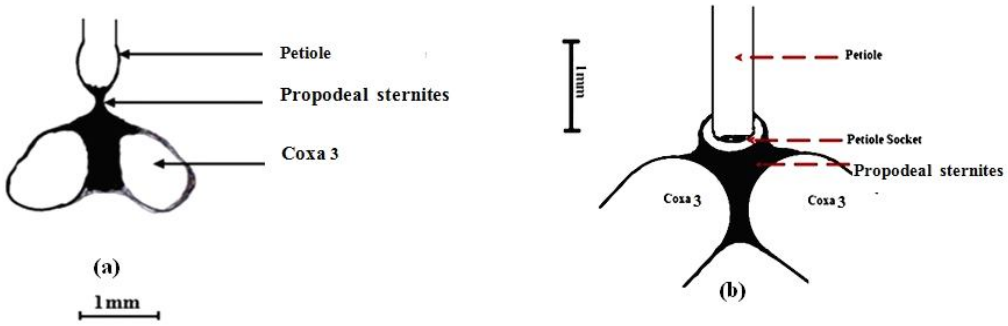



**Figure (4) a- petiole socket in *Eremochares* sp. b- petiole socket in *Podalonia* sp**


**Figure (5) lateral view of thorax in *Eremochares dives***

Genus ***Ammophila*** Kirby , 1798

***Ammophila* Kirby , 1798 Trans. Linn. Soc. [ Lond. ] 4 : 199.**

Revision of Egyptian Ammophilini members with shortly description of species [13], then designed a key to some species of *Ammophila* in Palearctic region and clarified of importance to use of male genitalia in this key[17] .

***Ammophila duhokensis*** sp. nov.

**Material** (5♀♀, 4♂♂): Holotype♂:**Duhok**, Sheranish mountain 26.9.2010. Allotype ♀, **Duhok**, Sheranish mountain 26.9.2010. Paratypes: (4♀♀,3♂♂): **Duhok**; Ser'senk, Ga'ra mountain 27.9.2010 (2♀,1♂); **Duhok**, So'laf 27.9.2010 (1♂) ; **Erbil**: Khulifan 20.7.2011 (2♀♀, 1♂♂). The specimens stored in Iraq natural history museum .

**Holotype male:** general description (Fig.6a): length 16-18 mm; in generally body black, with exception as follow : these parts are red : last half of fore and mid femora; fore and mid tibiae; first tarsomere(t1) of fore tarsus; second segment of petiole(T1); T2,T3(with longitudinal stripes on dorsal surface); S2 and S3 . Apical margin of mandibles are dark brown, tegulae ferruginous . Fore wings subhyaline with slightly infumated, hind wings hyaline, veins and stigma dark brown . Different parts of body covered by white hairs and silver pubescences and pruinosus . Head (Fig. 6 c, g): inner orbits conspicuously convergent at lower part of face; clypeus elongate ,with truncate and slightly up apically, covered with various length erect hairs and moderate density, and very densely depressed pubescences; broadly distance between fronto-clypeal suture and antennary pits; lower area of frons with pubescences and hairs similar to that found on clypeus, but it shorter and less density on upper area, sculpture inconspicuous, medio-longitudinal depression simple .Vertex with scattered pubescences and short erect hairs, sculpture consist from scattered and moderate size punctures, distance between one posterior simple eye and inner margin of compound eye wider than distance between posterior simple eyes itself. Genae covered with pubescences similar to that found on frons and moderate density semierect long hairs especially on lower parts. Antennae (Fig.1h): first flagellomere (F1) longer than second flagellomere (F2), with slightly enlarge apically compare than base; apical of last flagellomere rounded . Mouth parts (Fig.1e,i): mandibles relatively short, curved and acuminate apically, with conspicuous single tooth on inner margin near to apical than base, hairs scattered and short on the base

of mandibles; labrum elongate with truncate at apex, lateral margin of basal half with moderate long hairs.

Thorax (Fig.7a,c): pronotum with short and wide pronotal collar, dorsal surface rounded and shining with scattered small punctures; scattered short hairs and angled backward, and densely micropubscences covered of collar, anterior surface of collar strongly slope with neck; neck with scattered long semierect hairs and pubescences similar to that found on pronotal collar; pronotal lobe shining, silvery because it covered by densely silver pubescences and backward white short hairs and moderate density. Propleuron clothed with high density pubescences and long erect hairs. Scutum roughly, with transverse striae, small punctures in interspaces; hairs and pubescences on scutum similar to pronotal collar, densely on lateral of last half and posterior area; admedian, parapsidal and notauli line inconspicuous. Scutellum bitubercles, with simple longitudinal depression; small densely punctures on anterior half tubercles and longitudinal thin steriae on last half; hairs and pubescences as on scutum. Metanotum, convex and rogues surface with different punctures, hairs and pubescences similar to scutum. Mesopleuron with episternal sulcus complete and irregular or many direction decumbent densely silver pubescences as a widely batch or spot which is extend from the scrobe to mesopleurosternum, different length and moderately density of semi-erect and backward hairs clothed all parts. Metapleuron as similar to upper parts of mesopleuron .Propodeum (Fig.7c): dorsal surface conspicuously determinate by strongly sculptures, reticulate and different size of closely punctures ,this surface covered by moderately length of densely erect hairs and which it mixed with scattered semi erect hairs tend to forward; lateral surface hairs and sculptures similar to that found on metapleuron, posterior surface strongly slope with dorsal surface. Legs (Fig.8): coxae with densely shining and silvery pubescences, trochanter covered by scattered diverse length hairs; other parts of legs with densely and silvery pruinosus with exception of inner side of hind tibia, the last covered by short and scattered hairs that tend to densely at apical near from internal spur; claws simple and well developed area. Gaster: petiole relatively elongated, conspicuously longer than other gaster parts, clothed with moderately density and silvery shining pruinosus, and short white erect hair at apex of first segment of petiole (S1) on ventral surface; gasteral tergites covered with densely silvery pruinosus and scattered pubescences from fifth to seventh gasteral tergites (T5-T7), gasteral sternites with pruinosus as petiole and scattered very short erect hairs. Male genitalia (Fig.10): gonostyles with slightly curved and finger-shaped long process at ending of ventral surface, and five long setae on distance between basal process and dorsal surface. Volsellae: cuspis part with scattered and shortly hairs, dorsal surface of digitus with small tubercles at apex. Penis valves thick and curved with rounded apex; head with short, thick and slightly acuminate process and small teeth on ventral side.

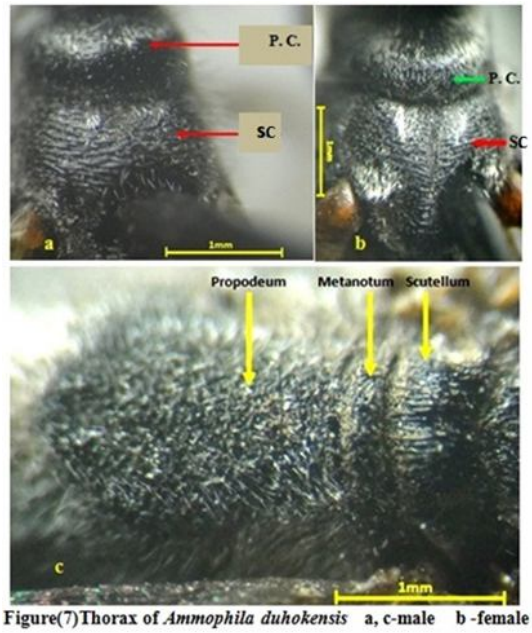
**Allotype female:** general description (fig.6 b): length 19-22 mm; in generally body black, with exception the parts follow are red: fore legs (coxae black, basitarsi and setae of tarsal rake are brown); second half of femora and tarsi in mid legs; second segment of petiole,T2,T3 and lower area of T4,S2,S3, basal half of S4. Wings, hairs, pubescences and pruinosus as in male. Head(Fig.6d,f): Inner orbits convergent at lower part of face; clypeus slightly wide, shallow at middle, apical margin as large lobe with two small processes and slightly depression at middle, covered with less silvery pubescences than male and scattered short erect hairs, apical of clypeus bare with moderately density and different size of punctures; broadly distance between fronto-clypeal suture and antennary pits but little than male; description of other parts as in male. Antennae such as in male with exception that apical of last flagellomere truncate. Mouth parts: mandibles(Fig.6f) thicker than male and relatively long and conspicuously acuminate apically, with two different teeth on inner margin nearly to apical than base, the anterior is bigger than posterior, small process position ahead of big tooth; scattered and different length of hairs on the base of mandibles.

Thorax (Fig.7b): pronotum as in male with exception that pubescences and hairs much densely; propleuron less pubescences with moderately density and small size punctures. Scutum more densely hairs and pubescences than male. Scutellum and metanotum as in male too. Mesopleuron: as in male with exception, it less density of pubescences on upper parts and narrow silver area on lower; metapleuron, propodeum, as similar to male. Legs: apices of tarsomere1 (t1) to tarsomere4 (t4) in fore legs(Fig.9b) with well developed lateral processes; tarsal rake: tarsomere1 with seven setae, three on lateral process of apex and other four position before apex; tarsomere2 and 3 with five setae, three on lateral process of apex; tarsomere4 with four setae, three on lateral process of apex.

Gaster: with pubescences and hairs as to male gaster.

**Diagnostic characters:** The new species differ from closely species especially *A. heydeni* in many morphological characters as follow: wide silvery area or spot consist from very densely pubescences on lower parts of mesopleuron (Fig**.** 8), labrum elongate with truncate apex and fore and mid legs checkered by red and black colour while the hind legs entirely black (Fig. 9a). To addition, in male the gonostyles with five long and strong setae, head of penis valve with short, thick and slightly curved to down spine-like process on ventral side, and with weekly teeth(Fig. 10a,c);female with tarsal rake consist from five setae on second tarsomere(t2), three found on lateral process of apex (Fig.9 b); while in *A. heydeni*, the lower area of mesopleuron covered by scattered white pubescence, hind legs checkered by red and black colour (Fig.17a);to addition in male the gonostyle with six long and strong setae, head of penis valve with long and thin process (Fig.17d,e);female with tarsal rake consist from six setae on second tarsomere(t2), three found before of apex and three on lateral process of apex (Fig.18).


Figure(6) *Ammophila duhokensis* sp. nov. a- male b- female c- face of male d-face of female e- clypeus and mandible(male) f- clypeus and mandible(female) g-vertex of male h- antenna of male i-labrum(♂)




Figure(7)Thorax of *Ammophila duhokensis* a, c-male b -female

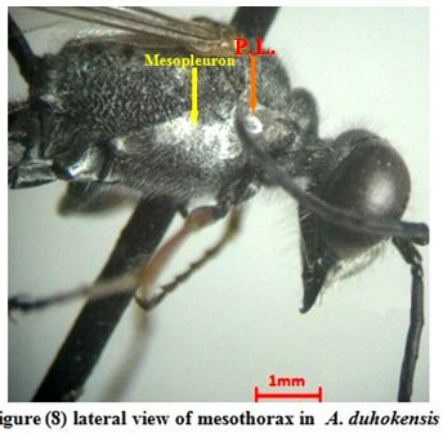
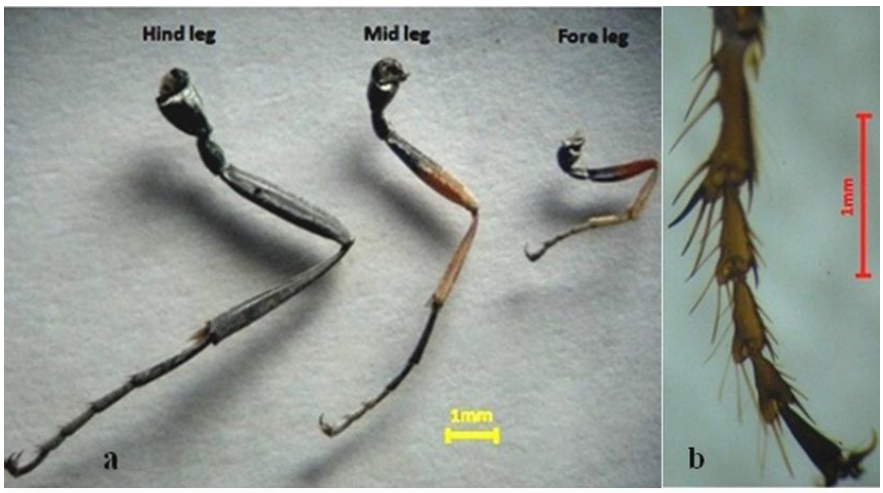
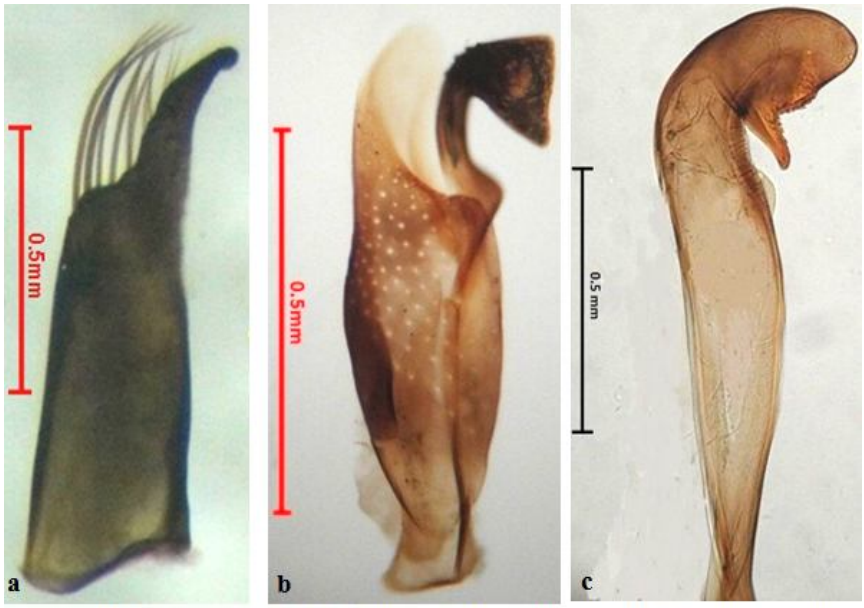



Figure (8) lateral view of mesothorax in *A. duhokensis*




Figure(9) *A. duhokensis* a- legs of male b- fore leg of female




Figure(10) Male genitalia of *A. duhokensis* (a)Gonostyle (b) Volsella (c) Penis valve

Key to species of ***Ammophila***

**Key to Males:**

1-Fore wings with two submarginal cells (SMC) (Fig.11a); small wasps (Fig.11 b) …… ***A. barbara*** (Lepeletier)

- Fore wings with three submarginal cells (SMC); medium to large wasps ……2

2-Tarsal claws with single tooth (Fig.12a); Episternal sulcus short, ending at level of scrobe (Fig.12b) …… ***A. hungarica*** Mocsary

-Tarsal claws without teeth, Episternal sulcus long , extending to anteroventral margin of pleuron (Fig.13) …… 3

3-Black of gasteral tergites shining with metallic reflection, Legs entirely black (Fig.14 a; Fig.15a,b) …… 4

-Black of gasteral tergites dell without metallic reflection (Fig.6a); Legs partially black with checkered red colour (Fig.9a ; Fig.16d, e) ……5

4-Dorsal surface of pronotal collar with 4 to 5 transverse ridges **(**Fig.14b); head of penis valve with long process on ventral side, and with small teeth (Fig.14c) …… ***A. haimatosoma*** kohl

-Dorsal surface of pronotal collar without transverse ridges **(fig.15c)**; head of penis valve with curved long process on ventral side, and without teeth (fig.15d**)** …… ***A . sabulosa*** (Linnaeus)

5-Dorsal surface of pronotal collar with transverse ridges (Fig.16 c, d); head length of penis valve equal to stalk length (Fig. 16c)..... ***A . gracillima*** Tasch.

-Dorsal surface of pronotal collar without transverse ridges (Fig.7a, b; Fig.17) ……..6

6-Lower area of mesopleuron covered by white dense pubescence (Fig.8); hind legs entirely black (Fig.9a); gonostyle with five long and strong setae, head of penis valve with short and thick process (Fig.10 a, c)…… ***A. duhokensis*** sp. nov.

-Lower area of mesopleuron covered by scattered white pubescence, hind legs checkered by red and black colour (Fig.17a; gonostyle with six long and strong setae (fig.17d,e, head of penis valve with long and thin process …….. ***A. heydeni*** Dahlbom

**Key to Female:**

1-Tarsal claws with single tooth (Fig. 12a); episternal sulcus short, ending at level of scrobe (Fig.12b) …… ***A. hungarica*** **Mocsary**

-Tarsal claws without teeth; episternal sulcus complete (Fg.13) ……..2

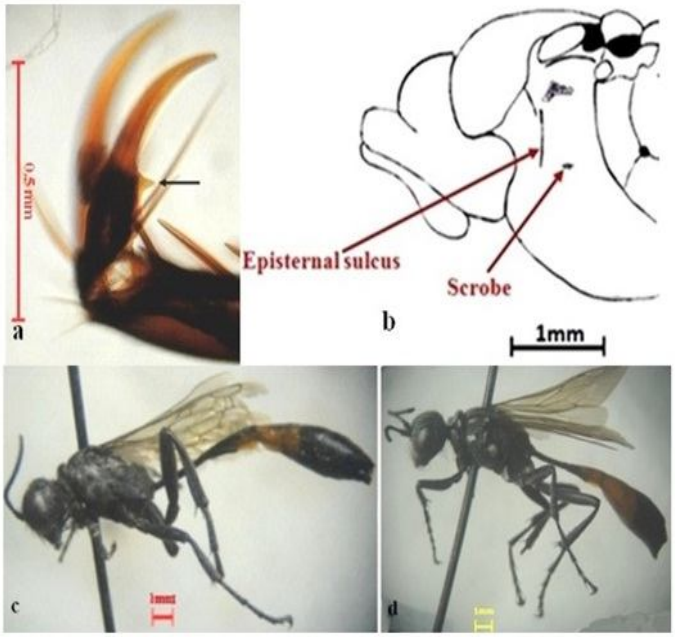
2- Dorsal surface of pronotal collar with transverse ridges (Fig.14e )……..…..3

-Dorsal surface of pronotal collar without transverse ridges (Fig.7b) ……..4

3-Last gasteral tergites black with metallic reflections (Fig.14d); pronotal collar glabrous, wider than length (Fig.14e); arolia reduced or absent (fig.14 f) …….. ***A . haimatosoma*** kohl

-Last gasteral tergites black without metallic reflections (Fig.16a); pronotalcollar covered by pubescences and elongate (Fig.16d); arolia present …….. ***A . gracillima*** Taschenberg


Figure (11) *A. barbara* a-fore wing b- male



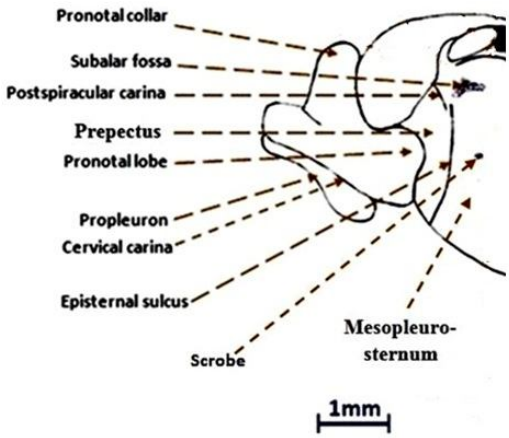

Figure(12) *A. hungarica* a-hind tarsal claws of female b-lateral view of thorax c- male d-female

4-Legs entirely black, last gasteral tergites metallic black (Fig.15e) …….. ***A . sabulosa*** (Linnaeus)

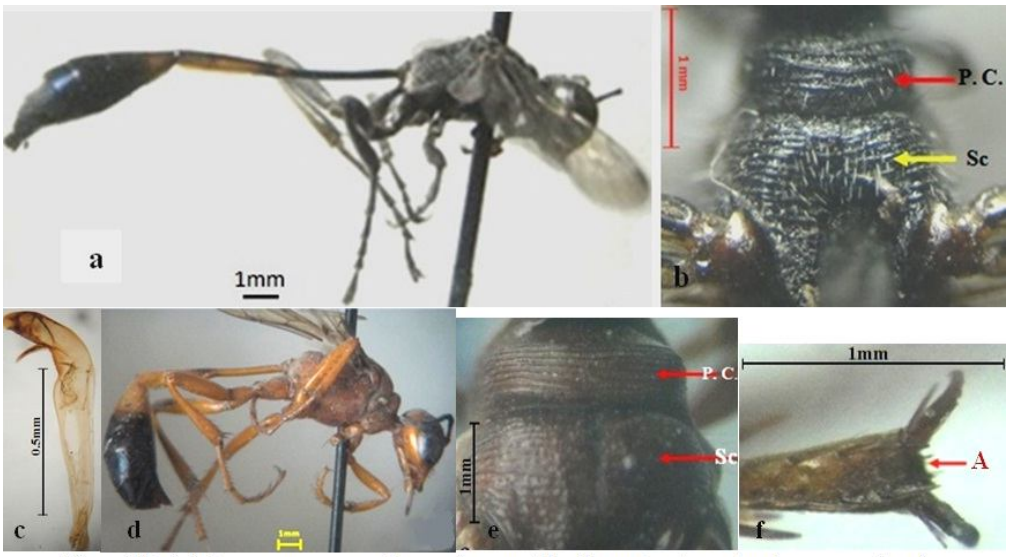
- Legs black and red colour, last gasteral tergites black (Fig.6b) ……. 5

5-Mesopleuron with marked densely silver pubescences (Fig.6b,8); hind legs entirely black tarsal rake on second tarsomere with five spines (Fig.9b) …….. ***A. duhokensis*** sp. nov.

-Mesopleuron without densely silver pubescences, hind legs black and red (Fig.17b); tarsal rake on second tarsomere with six spines (Fig.18) ..... ***A. heydeni*** Dahlbom




Figure(13) lateral of Prothorax and Mesothorax in Ammophilini




Figure(14) *A. haimatosoma* a- male b-pronotal collar and scutum of male c-penis valve d- female e- pronotal collar and scutum of female f- pretarsus of female

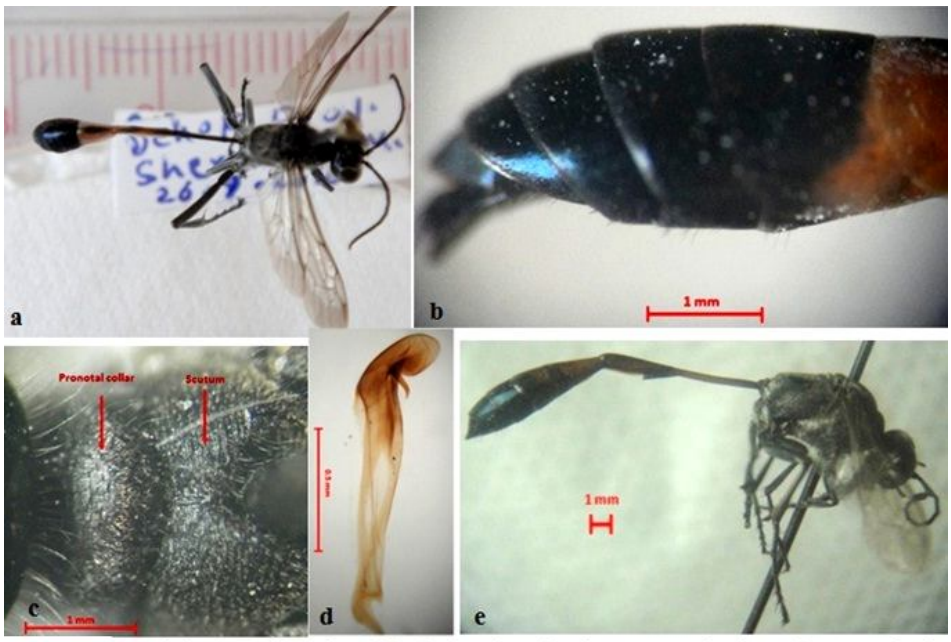
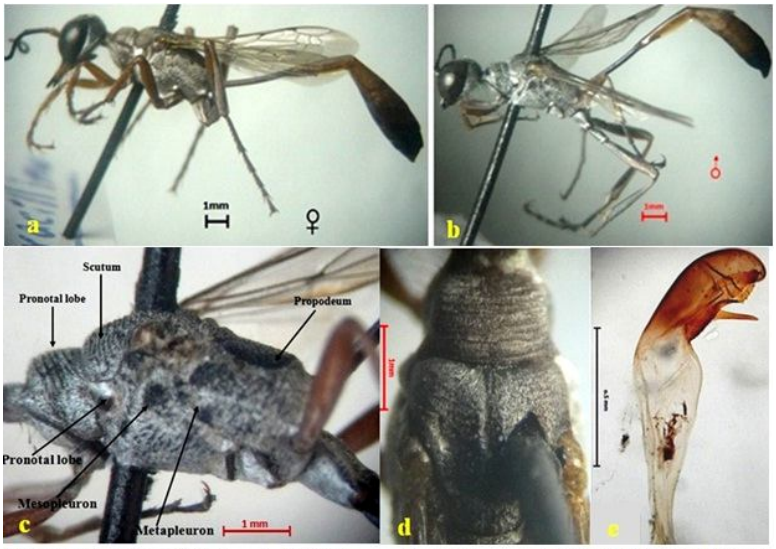
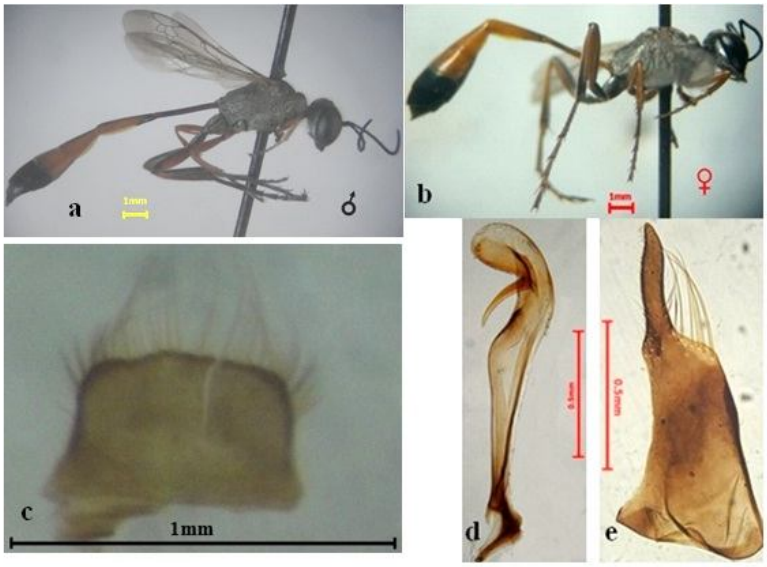


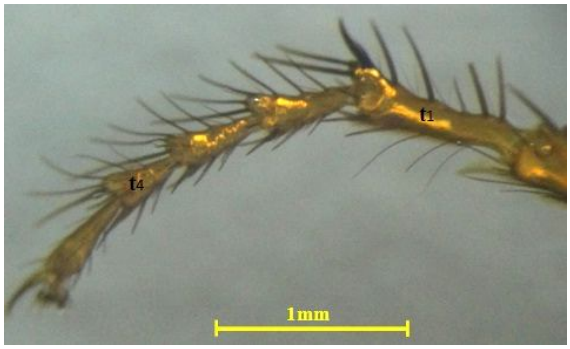

Figure (15) *A. sabulosa* a-male b- last abdominal tergites of male c- pronotal collar and scutum of male d- penis valve e- female




**Figure(16)** ***A. gracillima*** **a- female b- male c-lateral thorax of male d- dorsal surface of prothorax and mesothorax e- penis valve**




**Figure(17)** ***A. heydeni*** **a- male b- female c- labrum of male d-penis valve e- gonostyle**




**Figure(18) fore tarsus of** ***A. heydeni*** **(♀) showed tarsal rake**

***Ammophila barbara*** (Lepeletier,1845)
***Coloptera barbara*** **Lepeletier de Saint-Fargean , 1845. His. Nat. Insects Hymenopt. 3:162**.
**Material** (2♂♂) : **Basra** : Hartha , 5.4.1986.
**Distribution** :North Africa , Palestine , Turkey, newly recorded from Iraq .

***Ammophila hungarica*** Mocsary,1883
***Ammophila hungarica*** **Mocsary , 1883 . Ért. Term. KÖr. Xiii , p.25.**
**Material**(25♀♀ , 2♂♂ ): **Duhok**: Denarta ,5.5.2010 (3♀♀,1♂) ; **Nineveh**: Mosul, 14.5.1985 (22♀♀,1♂)
**Distribution**: Iberian Peninsula, Hungary, SW USSR, Iran, newly recorded from Iraq.

***Ammophila haimatosoma*** Kohl **,** 1883
***Ammophila haimatosoma*** **Kohl , 1883 . Verhandl. Zool. Bot. Ges. Wien. 33:383.**
**Material**(2♀♀ ,4♂♂): **Wassit** : Al-Zubaidiya – Sher'han vill, 5.8.2010 (2♀♀,1♂♂) , 12.9.2010(1♂) ; **Sulimanyia**: Ser'genar, 5.8.1973(1♂)
**Distribution** : North Africa , Palestine, Arabia , Pakistan , Iraq .

***Ammophila sabulosa*** (Linnaeus, 1758)
***Sphex sabulosa*** **Linnaeus , 1758 . Syst. Nat. 10:569.**
**Material**(28♀♀):**Nineveh**: Hadhar ,24.4.1969 (2♀♀); **Diyala**: Adhaim ,27.3.1977(2♀♀), 20.4.1986(5 ♀♀ ) ; **Basra**: Safwan , 30.3.1966 (11♀♀ ), 8.3.1983(4 ♀♀ ), 5.4.1986(4♀♀ )
**Distribution** : Europe, Asia , newly recorded from Iraq .

***Ammophila gracillima*** Taschenberg , 1869
***Ammophila gracillima*** **Taschenberg, 1869. Zeitschr. Ges. Naturwiss. 39: 433.**
**Material**(4♀♀, 5♂♂): **Wassit**: Al-Zubaidya – Sher'han vill ,6.8.2010 (3♀♀ ), 21.4.2011 (1♀.1♂), 28.5.2011 (4♂♂)
**Distribution** : North Africa , Palestine eastwards ,Saudi Arabia, newly recorded from Iraq .

***Ammophila heydeni*** Dahlbom , 1845
***Ammophila heydeni*** **Dahlbom , 1845. Hymenopt. Europaea 93:430.**
**Material** (57♀ ♀, 40♂♂) : **Wassit** : Al-Zubaidiya –Um Is'naim vill 21.5.2010(9♀♀, 3♂♂); Al-Zubaidiya – Sher'han vill, 6.8.2010 (3♀♀,4♂♂), 17.9.2010(7♀♀, 4♂♂), 13.4.2011(8♀♀, 3♂♂),26.5.2011 (7♀♀,4♂♂), 28.5.2011 (3♀♀,2♂♂) , 22.6.2011(2♀♀,2♂♂),23.7.2011(3♀♀,5♂♂);**Baghdad**: Abu-Graib, 29.9.2010(2♀♀,3♂♂); Jaddria, 17.7.2010(1♀,4♂♂). **Erbil**: Altun Kupri,21.7.2011 (7♀♀,5♂♂). **Diyala**: Adhaim , 6.6.1968 (1♀,1♂); **Babylon**: Musaib , 26.6.1983 (4♀♀).
**Distribution** : Mediterranean region, Asia .

Genus ***Podalonia*** Fernald , 1927

***Podalonia*** **Fernald , 1927 . Pro. U.S. Nat. Mus. 71(9):1-42**

*Podalonia* is represented in all of the major temperate and tropical land area of the world, the greatest number of species occur in the Mediterranean area and southwestern Asia; one species, *P. tydei* (Le Guillou), has a very broad range [3] .The recent generic diagnosis for *Podalonia* by [8,14,26], while a number of old world authors recognized this taxon as a subgenus of *Ammophila*[13,20].

Key to species of ***Podalonia***

**Key to Males:**

1-Legs entirely black (Fig.19a); dorsal area of propodeum with erect hairs, and reticulate rugosed coarsely striate (Fig.19b); head of penis valve with large basal spinelike process on ventral margin (Fig.19c)……. ***P. tydei*** (Le Guillou)

- Most of legs parts ferruginous reddish (Fig.20a); dorsal area of propodeum glabrous, closely and finely striate (Fig.20b); head of penis valve without spinelike process (Fig.20c) …… ***P. minax*** (Kohl)

**Key to Females**:

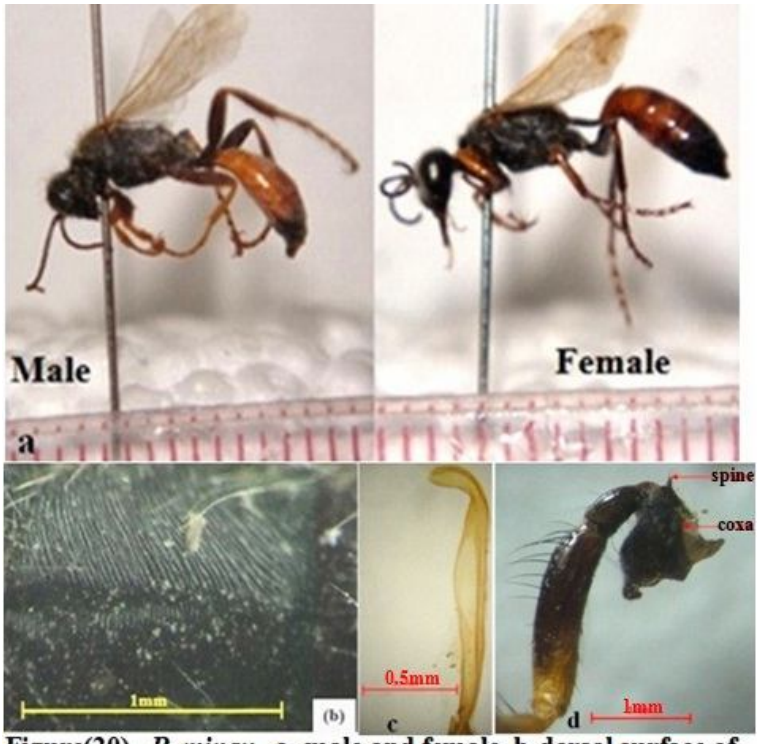
1-Body entirely black**;** wings darks, smoky with slightly violet reflections (Fig.21a)……2
-Body partly red; wing subhyaline, slightly infuscate apically (Fig.19a,20a) ……3
2-Dorsal area of propodeum with hairs (Fig.21b), and reticulate – rugosed striate (Fig.21c); tarsal rake on apical lateral process of third tarsomere(t3) with three spines (Fig.21d)…… ***P. marismortui*** (Bytinski-Salz)


Figure(19) Podalonia tydei a-male and female b-dorsal surface of pronotal collar of male c-penis valve

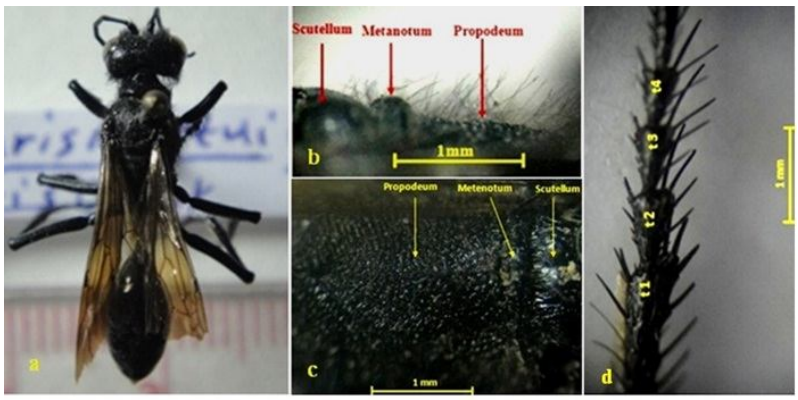
-Dorsal area of propodeum glabrous with finely striate (Fig.22a); tarsal rake on apical lateral process of third tarsomere(t3) with four spines (Fig.22b) …….. ***P. ebenina*** (Spinola)

3-Most of legs parts ferruginous reddish (Fig.20a);dorsal area of propodeum glabrous, with finely transverse striation (Fig.20b); apical of fore coxae with thick and short spinelike process (Fig.20c)…….. ***P. minax*** (Kohl)

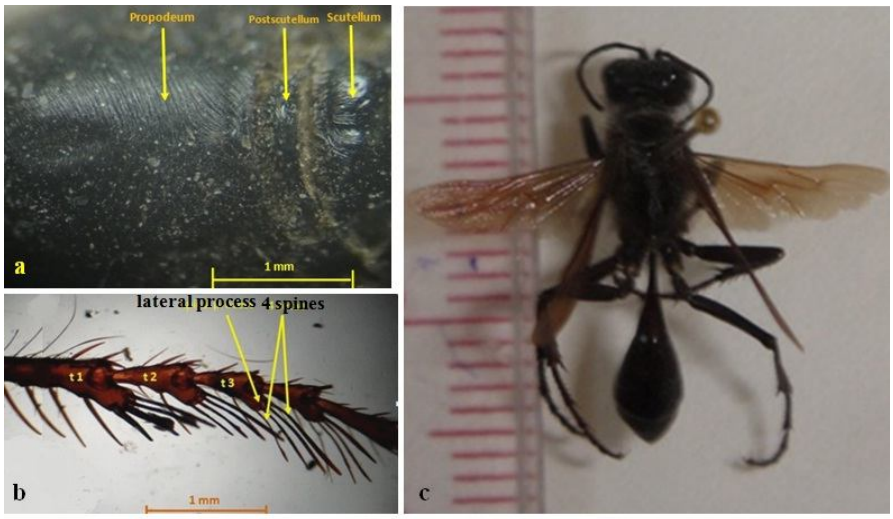
-Legs entirely black (Fig.19a);dorsal area of propodeum with hairs, and reticulate –rugosed striate (Fig.19b); apical coxae of forelegs without process …… ……***P. tydei*** (Le Guillou)




Figure(20) *P. minax* a- male and female b-dorsal surface of propodeum in male c- penis valve d- Some parts of fore leg




Figure(21) *P. marismortui* a- female b- lateral view of last thorax and propodeum c- dorsal view of last thorax and propodeum d-tarsus of fore leg




Figure(22) *P. ebenina* a- dorsal view of last thorax and propodeum b- tarsus of fore leg c- female

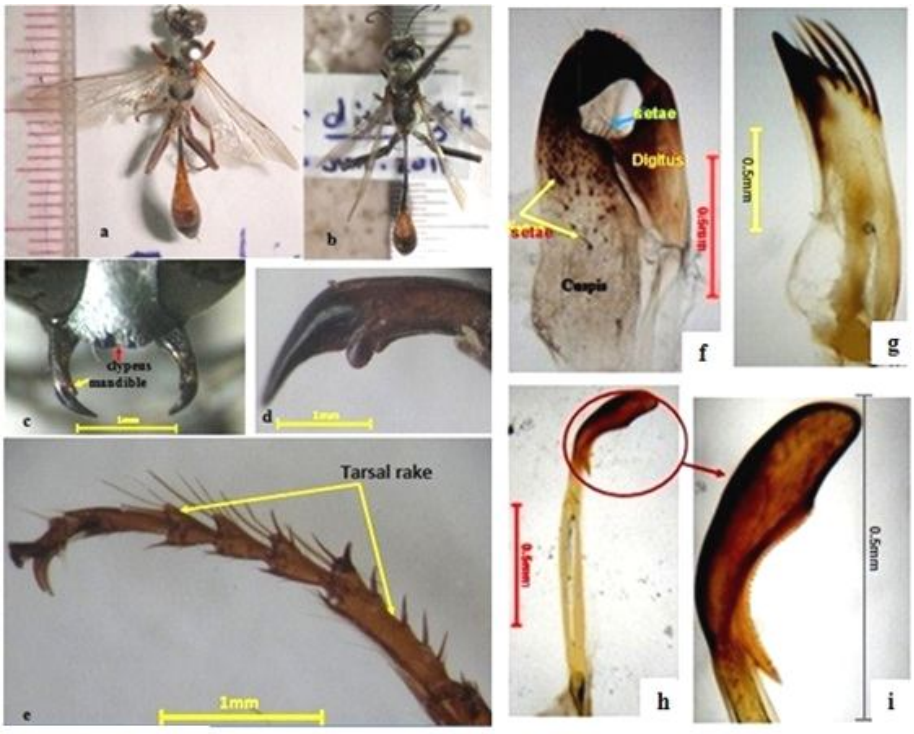
***Podalonia tydei* (Le Guillou, 1841)**
***Ammophila tydei* Le Guillou,1841.Ann.Soc.Ent.France,10:319.**
**Material** (120♀ ♀, 80♂♂) : **Baghdad**. :Nahdha Sq. 1.3.2010(2♀♀); Jaddria, 29.3.2010(12♀♀,7♂♂),6.4.2010(7♀♀,5♂♂),13.4.2010(16♀♀,9♂♂),20.4.2010 (12♀♀, 10♂♂) ,23.7.2010 (3♀♀, 2♂♂); Abu-Graib, 29.9.2010 (9♀♀, 4♂♂) .**Wassit**: Al-Zubaidiya ,21-23.5.2010 (4♀♀, 3♂♂), 16.7.2010 (1♀ , 3♂♂); Al-Zubaidiya–Sher'han vill, 2-6.8.2010 (2♀♀, 4♂♂), 22.6.2011(3♀♀, 1♂), 28.5.2011 (3♀♀, 5♂♂), 23.7.2011(1♀,3♂♂); Al-Zubaidiya–Sek'ran vill., 19.9.2010 (14♀♀,5♂♂), 9.10.2010(5♀♀,2♂♂). **Basra**: Basrah, 22.3.2010 (1♀.2♂♂); **Babylon**: Musaib, 30.9.2010(3♀♀,1♂♂). **Diyala**; Adhaim, 19.7.2011 (7♀♀, 6♂♂); **Erbil**: Alton Kupri,19.7.2011 (5♂♂), 21.7.2011(2♀♀); Khulifan, 20.7.2011 (3♀♀,2♂♂); Hindrin Mountain, 20.7.2011(10♀♀,1♂♂).
**Distribution** : Africa , Asia, Mediterranean Region .

***Podalonia marismortui* (Bytinski - Salz ,1955 )**
***Ammophila* (*Podalonia*) *maris-mortui* Bytinski - Salz,1955. Bull. Res .Council of Israel 5 (1):33-35 .**
**Material**(25♀♀): **Duhok**: Pers Mount. ,5.5.2010 (8♀♀) ; **Erbil**: Berzzan , 10.4.2010 (12♀♀) ; **Diyala**: Khan'qeen, 10.4.1961 (3♀♀), **Sulimania**: Hassarost Mount. 14.7.1971 (2♀♀).
**Distribution** : Iraq, Egypt, Israel , Mediterranean Region .
***Podalonia minax* (Kohl,1901 )**
***Ammophila* (*Psammophila*) *minax*, Kohl,1901. Ann. Naturhist. Mus. Wien 16 :162.**
**Material**(2♀♀ ,3♂♂): **Basra**: Hartha ,15.3.1986 (1♂) , 30.3.1986 (2♀♀,2♂♂) **Distribution** : Egypt , Morocco, Algeria, Western Sahara, Libya, Kuwait, Canary Island, newly recorded from Iraq .
***Podalonia ebenina* (Spinola, 1838)**

***Ammophila ebenina* , Spinola , 1838 . Ann. Soc .Ent. France 6:464.**
**Material**(28♀♀): **Nineveh**: Hatra ,24.4.1969 (2♀♀); **Diyala**: Adhaim ,27.3.1977(2♀♀) , 20.4.1986(5 ♀♀ ); **Basra**: Safwan, 30.3.1966 (11♀♀ ), 8.3.1983 (4 ♀♀ ), 5.4.1986(4♀♀ )
**Distribution** : Egypt, Libya, Jordan, Syria, Canary Island, Iraq , sw USSR .

Genus ***Eremochares*** Gribodo, 1883

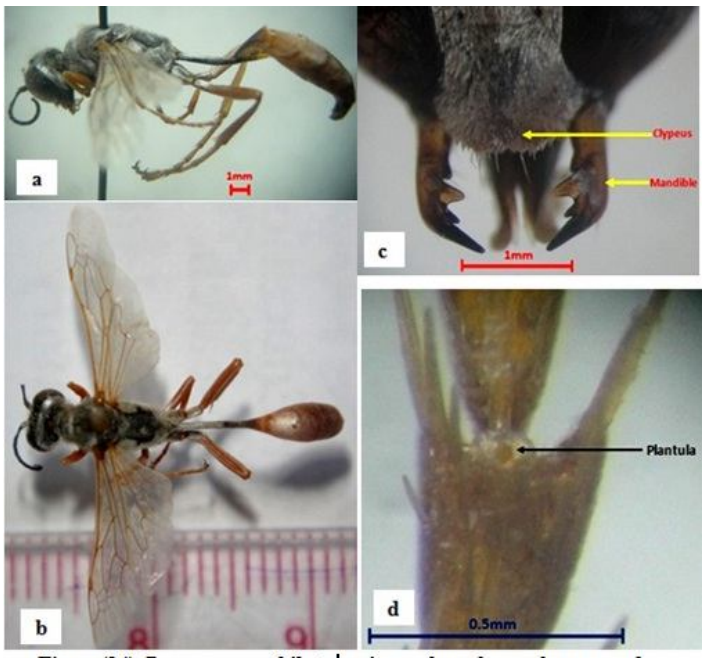
***Eremochares* Gribodo, 1883 Ann. Mus. Stor. Nat. Genova, 18 : 265.**
This is a small genus of five species of which the most common, *E. dives* Brullé, is exceptional in a Grasshopper larvae as prey for its young, which are fed by progressive provisioning [3,18]. Alfieri (1946) *Eremochares* described as a subgenus to *Ammophila* by[13] . Some morphological feature important of this species are figured in present study(Fig.23).
***E. dives* (Brullé,1832 )**
***Ammophila dives* , Brullé,1832. Exp. Sci. Moree., 3:369**.
**Material**(4♀♀ , 2♂♂): **Wassit**: Al-Zubaidiya-Sherhan village ,21.4.2011( 3♀♀ , 1♂♂), 29.5.2011(1♀,1♂).
**Distribution** : Mediterranean area , W. Asia .



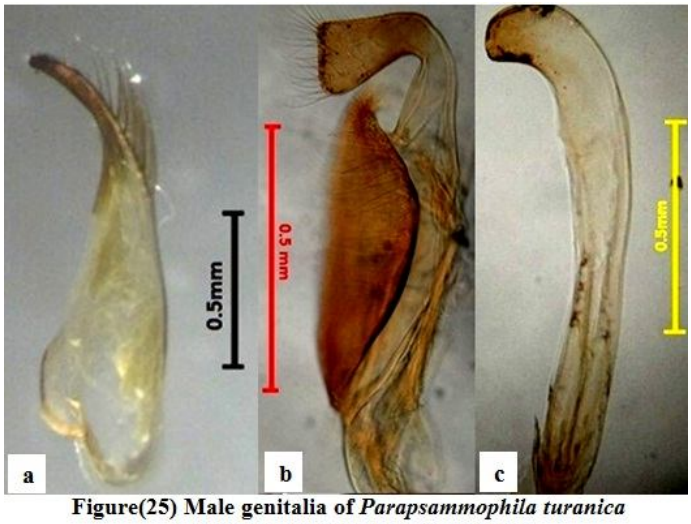

**Figure(23)** *E. dives* **a- female b- male c- clypeus and mandible of male d- mandible of female e-tarsal rake (fore tarsus of female) [male genitalia f-i] f-volsella g-gonostyle h- penis valve i-head of penis valve**

Genus ***Parapsammophila,*** 1869

***Parapsammophila* Taschenberg , 1869 . Z. Naturw. , 34 : 429.**
*Parapsammophila* is an Old World genus, and most of its 19 species are restricted to Africa; members of this genus range in length from 17 to 52 mm, the biggest species ranked among the largest known Sphecidae [3].Kohl reviewed of Palearctic species [9], then Palearctic African forms recognized [13]. In Iraq this genus as a new record, identify as a *P. turanica* F. Morawitz species and many morphological feature important are figured (Fig.24, 25).
***P. turanica* F. Morawitz, 1890**
***Parapsammophila turanica*, Hor. Ent. Ross. , 24:582.**
**Material**(2♂♂): **Kerbela'a**: Kerbela'a ,29.5.1974.
**Distribution**: N. Africa , S. Asia , Saudi Arabia, newly as new record .




**Figure(24) *Parapsammophila turanica* a, b-male c- clypeus and mandible of male d- plantula on tarsomere of hind leg of male**




**Figure(25) Male genitalia of *Parapsammophila turanica***
**a- gonostyle b-volsella c-penis valve**

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