



Taxonomic revision of Subgenus *Pyganthophora* Brooks (Hymenoptera–Apidae) of Egypt

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Abstract: Fifteen *Anthophora* species belonging to Subgenus *Pyganthophora* Brooks are revised taxonomically. Specimens are collected from different localities of Egypt, the five main Egyptian Collections are examined. Genitalia are desiccated, keys, diagnostic characters, synonyms, distribution, line drawing illustrations and photographic coloured pictures are added. *A. arabica* Priesner become synonym to *A. pauperata* Walker. After examination the genitalia of the collected specimens, it was found that *A. Scopipes* Spinola, are completely different from this subgenus. *A. Salwae* Rawda and *A. salamica* Rawda are re-described.

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Key words: *Anthophora*, Solitary bees, digger bees, long tonged bees, identification keys, diagnostic characters, coloured pictures.

1. Introduction

Anthophora species are most abundant in the northern temperate and African regions, Egypt was one of the richest countries of its species diversity. *Anthophorini* is important pollinators for wild and cultivated plants, they are considered very good pollinators for several main crops such Faba bean, therefore the diversity of these native bees is mandatory for biodiversity and agricultural ecosystem, but unfortunately many species are in decline and the species richness and abundance becoming less than the past and in dangerous (Semida 2000, Aouar-Sadli *et al.* 2008, Blacquiere *et al.* 2012, Shebl *et al.* 2013, 2014, Shebl & Farag 2015, Engel *et al.* 2017 and Falk 2019).

These solitary long-tonged digger bees usually preferring gregarious habits forming large hundreds of aggregation, mostly nest in ground or in rotten wood, they can be easily identified by their heavy and beautiful colours (Michener 2000, Engel 2007, Mahmoud *et al.* 2008, Amin & Mawlood 2017 and Powney *et al.* 2019). Genus *Anthophora* (with distinct arolia (sticky pads) between the tarsal claws according to Brooks, 1983 & 1988) are revised in Egypt during Priesner 1957, Rawda 2001, new synonyms and species are added by Rawda 2003 & 2011, but more collections of *Anthophora* specimens by Dr. Shebl enable clear characters especially in male genitalia and help in introducing this more obvious revision.

2. Material and Methods

Anthophora bees were collected from several locations: Suez, (14/11/2017) (29 52 21 N, 32 28 03 E), Suez Canal University (10/7/2017) (30 37 13 N, 32 16 11 E), South Sinai, Saint Catherine, Wadi El Rabine (23/10/2018) (28 33 45 N, 33 56 58 E), Ismailia, Qantara East (24/11/2017, 27/11/2018) (30 52 02 N, 32 20 07 E), Qantara Gharb El-masaied (29/10/2018) (30 37 40 N, 32 14 29 E) & another different localities as Wadi El-Rayyan, El-Fayoum Governorate by the sweeping method, samples pinned, labelled and preserved in wood boxes at Department of Entomology, Faculty of Science, Ain Shams University. Male genitalia were dissected, Microscope slides are prepared, Photos of specimens were taken by using digital camera, and line drawing and illustration are made for all available samples. Specimens are identified by using stereomicroscope at magnifications reaches (100 X), main Collections are examined as: Ain Shams main and side collection (Ain Coll.), Cairo University Collection (Car.Coll.), Entomological Egyptian Society Collection (Soc. Coll.), Ministry of Agriculture Collection (Agric. Coll.) and Al Azhar University Collection (Alferi Coll.). Bees were collected from several plants as follows: *Vicia faba* L., *Lantana camara*, (*Basilc*), (*Brassica* sp.), *Stachys aegyptiaca* and in addition to some grasses.

3. Results & Discussion

Subgenus *Pyganthophora* Brooks

Pyganthophora Brooks, 1988, Univ. Kans. Sci. Bull. 53: 462.

Type species: *Apis retusa* Linnaeus, 1758, Ann. Hist. Mus. Nat. Hung. 67: 279-292.

Diagnostic characters: Length: 11-17 mm, in both sexes, flabellum has finger like apical projections. **Male:** Has face yellow (black in *A. rogenhoferi* Morawitz, *A. salwae* Rawda & *A. angolensis* Dalla Torre); mandible black, third antennal segment as the length of the three following segments together; mid-distitarsal brush present even may be weak, mid-basitarsal brush absent, hind basitarsus normal without teeth, basitibial plate are well developed; pygidial plate is distinct; 6th sternite emarginated apicomediaally, and with a lateral depression and a central lightly sclerotized area; 7th sternite has apical shallow and broad emargination and with apicolateral chitinized angles, laterally with a dorsal and ventral lobe, base of disc with dark sclerotized area; apodeme 0.4-1.75 as long as the length of disc; 8th sternite has apical projection from two to four and also has longitudinal sclerotization.

Genitalia: Apex of gonocoxite has small lateral process, gonostylus short moderate in length 0.5-9.5 times as wide. **Female:** Head black; 3th antennal segment as far as length of the four following segments together & as usual without mid-tarsal brushes.

Key to species (Males)

1- Labrum, clypeus, and first antennal segment black.....(2)

- Labrum, clypeus, and first antennal segment yellow.....(4)

2-Without basitarsal brushes, face without white hairs with only dense black hairs.....*rogenhoferi* Morawitz.

-With basitarsal brush, face with white and black hairs & without dense black hairs only.....(3)

3-length 13-15 mm, with distinct mid-distitarsal brush, face with dense white hairs (Figs.37 & 38); genital valve rectangular in shape, with blunt apex (Fig.39), the 7th sternite with apodeme 0.7 as long as the length of disc (Fig.40), the 8th sternite with rounded edges (Fig.41).....*salwae* Rawda

-Length 11-12 mm, with weak mid-distitarsal brush; face with black and few white hairs; genital valve not rectangular in shape, without blunt apex, 7th and 8th sternite not as the above....*angolensis* (Dolla Torre)

4- Thorax and the first two abdominal segments are yellowish in colour, 13-17mm in length.....(5)

-Thorax and the first two abdominal segments are greyish in colour, 11-15mm in length.....(8)

5-Thorax and abdominal tergites 1-2 with reddish-yellow hairs; tergites 3-6 with dense black hairs, legs blackish (Figs.1, 4 & 5).....*albosignata* Friese

--Thorax and abdominal tergites 1-2 without reddish hairs; tergites 3-6 without dense black hairs, legs brownish.....(6)

6-Abdomen reddish in colour, without abdominal fasciae, without white hairs, legs with white hair only at tibial base (Figs.21 & 22)... ..*salamica* Rowda.

- Abdomen with black colour, with abdominal fasciae and white hairs at first two tergites, legs without these basitibial white hairs.....(7)

7- Flabellum brown, abdominal tergites with dense golden brown hairs.....*flabellate* Priesner

- Flabellum black, abdominal tergites without dense golden brown hairs, abdominal tergites VI & VII with dense black hair (Figs.13 -17).. *spinolana* Priesner

8- Face with dense black long hairs, thorax & abdominal tergites I-III with grey pilosity, without black hairs, the rest tergite with dense raised black hairs.....*fascialoids* Brooks

- Face with dense white hairs, thorax & abdominal tergites with white & black hairs.....(9)

9-Mid-distitarsal brush indistinct, without abdominal fasciae, gonocoxite with apico-lateral process half the length of gonostylus (Fig.36)..... *nigrilabris* (Spinola)

- Mid-distitarsal brush distinct, with abdominal fasciae, gonocoxite with apico-lateral process less than the half length of gonostylus.....(10)

10-Clypeus without two black basal spots, abdominal tergites V & VI with white hairs, penis valves are C-shaped, penis valve bridge square (Fig.30).....*arida* Brooks

- Clypeus without two large black basal spots, abdominal tergites V & VI with black hairs, penis valves are triangular, penis valve bridge rectangular (Figs.44-47).....*pauperata* Walker

Key to species (Females)

1-Abdomen with reddish colour, with few yellow hairs at the first abdominal tergite only, with only one faint abdominal fasciae, legs all reddish (Figs.26-29).....*salamica* Rawda.

-Abdomen with black colour, with hairs not at the first abdominal tergite only, legs variable... (2)

2-The white abdominal fasciae 3-5 widely interrupted medially (Figs. 32 & 35).....

.....*angolensis* (Dolla Torre)

-Abdominal fasciae 3-5 not medially interrupted..... (3)

3-The last abdominal segment with dense ferruginous hairs, the fasciae of the 3rd and 4th abdominal tergites thin in the middle, face & legs dark brown (Figs.19 & 20).....*flabellata* Priesner

-The last abdominal segment without these ferruginous hairs, abdominal fasciae not thin, legs & face variable.....(4)

4-The abdominal fasciae not present in all abdominal tergites.....(5)

-The abdominal fasciae present in all abdominal tergites.....(6)

5- 14-16 mm in length has dense long hairs and distinct fasciae.....*rogenhaferi* Morawitz

-12-14 mm in length has few hairs and less distinct fasciae.....*pauperata* Walker

6- 11-12 mm in length, face has some white hairs mixed with black hairs.....*arida* Brooks

-Length more than 12 mm, face with dense long white hairs.....(7)

7-Legs black with dense black hairs, without white or brown hairs; thorax, the 1st and 2nd abdominal tergites with ferruginous hairs (Figs.9-12).....*albosignata* Friese

-Legs grey or brown; thorax, the 1st and 2nd abdominal tergites without ferruginous hairs..... (8)

8-Legs brown, with brown hairs, Thorax, 1st and 2nd abdominal tergites with white fasciae, the rest tergites with black hairs and without fasciae (Fig.18).....*spinolana* Priesner

-Legs greyish with white and black hairs..... (9)

9-Length 15.5-17 mm, 3rd and 6th abdominal tergites with dense black hairs.....*nigrilabris* Spinola

-Length 13-15 mm, 3rd and 6th abdominal tergites without dense black hairs on rest tergites (10)

10-Abdominal tergites from three to five without fasciae, with dense black hairs on rest tergites (Fig.31).....*fascialoides* Brooks

-Abdominal fasciae present, without dense black hairs (Fig.43).....*salwae* Rawda

Anthophora albosignata Friese (Figs.1-12)

Podalirius albosignatus Friese, 1886, Termeszetr. Fiizetek, XIX: 265.

Anthophora albosignata Storey, 1916, Min. Agric. Techn. Bull.5, P: 17.

Anthophora albosignata Alfken, 1926, Senckenbergiana, VIII, P: 102.

Anthophora tenuiciliata Alfken, in Brooks, 1988, Univ. Kans., Sci., Bull. 53, P: 559.

Anthophora rubricus Dours, 1869, Mem. Soc. Linn. Nord France 2:5-211.

Diagnostic characters: Male:12.5-14.5 mm in length; the first antennal segment, labrum, clypeus, frontal sides whitish yellow; vertex, mandibles and the two basal pits of labrum and clypeus black; with white hairs on face; the thorax, the 1st and 2nd of the abdominal tergites with yellowish- red pilosity, the rest of the abdominal tergites with raised black hairs. Legs with black hairs, the distal disc of tibia and the 1st tarsal segment with yellow hairs. Mid leg with obvious disti-tarsal brush, gena well developed, pygidial plate clear, fasciae absent. **Genitalia:** The gonostylus twice as long as the apical lateral process, the length of the triangular genital bridge equal 2.5 times as long as its base, the seventh sternum with short apodeme equal one and quarter as long as disc. **Female:** 13-15 mm in length, face black, the pilosity as in male but with weak white fasciae in the first three tergites; the legs with few brownish hairs exteriorly.

Material examined: Borg El Arab 17.3.1953 (2), 5.3.1955 (2), Abu Keer 19.4.1953 (2), El Montazah 4.3. 1955 (1), 31.3.1956 (4), Mamourah 2.3.1956 (1), Wadi El Arbaein 25.3.1997 (2), 20.4.1997 (2), 24.3.1998 (1), 22.4.1998 (2) (**Ain. Coll.**), Matrouh 1.3.1928 (1) (**Alf.Coll.**), Mariut 7.3.1912 (1), 10.3.1914 (1) (**Agric.Coll.**). Ismaillia, (27/11/2018) (2)

Distribution: Sinai and Costal strip.

Anthophora angolenses (Dalla Torre) (Figures 32-35)

Anthophora angolenses (Dalla Torre), 1896, in Brooks, 1988, Univ. Kans., Sci. Bul., 53: 462.

Anthophora atriceps Perez, 1895, Acta. Soc. Linn. Bordeaux, XXXIII: 139 male (preoccupied).

Podalirius atriceps Friese, 1897, Bienen Europas, III, P: 20.

Anthophora atriceps Storey, 1916, Min. Agric., Techn. Bull. 5, P: 18.

Anthophora atriceps Alfken, 1926, Senckenbergiana, VII: 101.

Diagnostic characters: Male: 11-12 mm in length, head black, with few white hairs; thorax, 1st and 2nd abdominal tergites with mixed white and black hairs, the rest tergites with black hairs only, fasciae indistinct, tibiae and tarsi with distinct white hairs apically; mid tarsi with weak disti-tarsal brush, distinct basi-tarsal brush and tarsal brush. **Female;** Figs. (32-35): 14-15 mm in length, the pilosity as in male but

the abdominal fasciae clear in the sides, widely interrupted at middle.

Material examined: Burg 25.4.1953 (2), 25.4.1952 (1), 16.9.1955 (2), 4.5.1959 (1), Helwan 18.3.1939 (1) (**Car.Coll.**); Borg El Arab 7.4.1945 (1), 8.2.1951 (1), Abu Mena 8.4.1954 (1) (**Ain. Coll.**); Mariut 1.3.1914 (2), 3.3.1912 (1), Borg El Arab 21.2.1926 (1Male) (Paratype) (**Alf.Coll.**); Mariut 7.3.1912 (4), 10.3.1914 (2), Amria 26.2.1918 (3), Dekheila 18.2.1919 (2), Mersa Matrouh 29.3.1927 (3) (**Agri. Coll.**).

Distribution: Costal strip and Lower Nile.

***Anthophora arida* Brooks** (Figure30)

Anthophora desertorum Priesner, 1957, Bull. Soc. Entomol. Egypt, XLI: 28 (preoccupied).

Anthophora arida Brooks, 1988, new name in Brooks, Univ. Kans. Sci. Bull.53, Vol. 5:464.

Diagnostic characters: Male: 11-15 mm in length, the 1st antennal segment, all clypeus and labrum except its two basal spots yellow; mandibles black. The head has long raised white hairs mixed with black ones at orbits and vertex; thorax with long grey and few black hairs; the abdominal tergites from three to five clothed with grey hairs. Middle and hind tibiae black with dense white hairs, with dense white hairs only at margins and apices of the hind tibiae and metatarsi; mid leg with obvious distitarsal brush; pygidial plate has a parallel-sided excavated triangular. **Genitalia:** gonocoxite with elongated gonostylus and C-shaped penis valve (Fig.30) **Female:** 11-12 mm in length, 4-4.5 in width, face black with dense raised white hairs, mixed with few black hairs in vertex and thorax, clypeus has median keel. Abdomen as in male but the fifth abdominal tergite with black pilosity except at sides with white hairs.

Material examined: Eastern desert 11.3.1918 (3) type, paratype (**Alf.Coll.**); Kom Osheim 23. 3. 1997 (1), 25.4.1998 (2) (**Ain.Coll.**), Qantara (29/10/2018) (1).

Note: There is one female in the (Agric.Coll.) under *A.calcarata* Lep. 2.4.17, identified by Alfken, 1926 but this specimen has not black hairs in the 1st and 2nd tergites; clypeus carinate so it is a mis-identification of *A.desertorum* Priesner.

Distribution: Eastern desert.

***Anthophora fascialoides* Brooks** (Figure 31)

Anthophora facials Priesner, 1957, Bull. Soc. Entomol. Egypt, XLI: 47.

Anthophora fascialoides Brooks, 1988 new name Univ. Kans. Sci. Bull.:464.

Type locality: Egypt (Wadi Umm Asad) 29.3.1954 (Schwarz, Ansfelden, Austria).

Diagnostic characters: Male: 11-12.5 mm in length, face yellow, with black hairs; thorax, the first three the abdominal tergites with grey pilosity but without black hairs; the distal part of the abdominal

tergites from four to six with long raised black hairs; the mid-leg with indistinct distitarsal brush. **Female:** 13-14mm in length (Fig.31), face with black hairs, clypeus has a median carina; vertex, thorax and the first two abdominal tergites with short raised grey hairs, the rest abdominal tergites with short black hairs, the sixth tergite with short reddish hairs.

Material examined: El Arish 1.3.1956 (1) (**Alf. Coll.**); Wadi El Arbaein 23.3.1998 (2), 25.4.1998 (1) (**Ain. Coll.**).

Distribution: Sinai and Eastern desert.

***Anthophora flabellate* Priesner** (Figures 19 & 20)

Anthophora flabellate Priesner, 1957, Bull. Soc. Entomol. Egypt, XLI: 50.

Diagnosis: Male: 13-15 mm in length, with yellow 1st antennal segment, face and the base of mandibles, the suture between clypeus and sides of frons black; head has a mixed of white and black hairs in the vertex and sides; thorax with yellowish-grey hairs and some black ones; the first and second abdominal tergites with plumose yellowish-greyish hairs, and very fine white marginal fasciae. The abdominal tergites from three to five with raised black hairs, the 6th and 7th abdominal tergites with ferruginous hairs; legs dark brown, with brown hairs, the mid leg with a distitarsal brush. **Female:** 13-15 mm in length (Figs.19 & 20), face dark brown to black, with raised whitish hairs; vertex and thorax with white hairs mixed with black ones, abdominal tergites with reddish hairs mixed with black hairs, from the 3rd tergite; each tergite with fine white fasciae, may be interrupted in fourth and fifth tergites. Legs with ferruginous hairs.

Material examined: Wadi Hoff 1.3.1918 (2), Paratypes (**Alf.Coll.**), Suez (14/11/2017) (1).

Distribution: Eastern desert.

***Anthophora nigrilabris* Spinola** (Figure 36)

Anthophora nigrilabris Spinola, 1838, Ann. Soc. Entomol. France, 546.

Podalirius saropodoides Friese, 1897, Bienen Europas, III: 108.

Unnamed Savigny, 1912 Description d'Egypt P1. I, Fig. 4(male).

Anthophora cinereiceps Alfken, 1926, Senckenbergiana, VIII: 102, 124.

Diagnostic characters: Male: 14-15 mm in length, the 1st antennal segment yellow, the conical median strip of clypeus and labrum yellowish-brown, the sides of face and mandible black, clypeus with white hairs; thorax, the 1st and 2nd tergites with raised gray hairs, the second tergite with black hairs and few white hairs and without fasciae. Mid leg with weak disti-tarsal brush, the 7th tergite with short blunt process, **Genitalia:** (Fig.36) Apex of gonocoxite with short upper process (two times as its base), gonostylus

slender, elongate, bristle like, with few hairs, its length 8-10 times as long as wide, the 7th sternite with a lateral lobe on the disc, the 8th sternite with dense hair apically, pointed speculum.

Female: 15.5-17 mm in length, face black, with brownish hairs; the thorax & abdomen as in male but have more black hairs, the 4th and 5th of abdominal tergites with long white hairs at sides; the hind legs with brown hairs.

Material examined: Helwan 14.4.1935 (8), 15.12.1934 (4), 18.12.1934 (2), 30.11.1935 (1), 19.1.1935 (3) (**Car. Coll.**); El Mansora 1.4.1913 (1), 1.2.1914 (1), 3.3.1913 (1), 6.2.1926 (1), 1.4.1912 (1) (**Alf. Coll.**); Tourah 17.2.1914 (3); Meadi 17.12.1912 (3), 29.2.1912 (2), 4.1.1913 (2), 26.1.1913 (4), Nawa 7.1.1913 (2), Giza 13.1.1914 (3), Fayoum 15.4.2016(1) (**Ain. Coll.**).

Distribution: Lower Nile.

***Anthophora pauperata* Walker** (Figs.44-47)

Anthophora pauperata Walker, 18771, List Hym. Egypt: 98.

Anthophora arabica Priesner 1957, Bull. Soc. Entomol. Egypt, XLI: 1-117

Diagnostic characters: 12-14 mm in length; with yellow first antennal segment, clypeus & labrum except the two small basal tentorial pits, frons with dense white hairs; thorax with white hairs mixed with black hairs, abdomen with white fasciae, the 5th and 6th tergites with black hairs only, pygidial plate clear and straight, half the length of fifth tergite; legs with dense white hairs exteriorly, mid leg with the disti-tarsal brush, hind tibia with a dorsal tibial process. Gonocoxite with lateral process less than the length of gonostylus. **Female:** as male but with black head, without tarsal brushes.

Material examined: St Katherine 20.3.1997 (**16 Syntype**), Wadi El Rabine (23/10/2018) (3).

Distribution: Sinai.

***Anthophora rogenhoferi* Morawitz**

Anthophora rogenhoferi Morawitz, 1872, Horae Soc. Entomol. Rossicae 12:1-69.

Diagnostic characters: Male: 14-15.5 mm in length, face black with dense and long black hairs; thorax, the 1st and 2nd of abdominal tergites with long whitish-yellow pilosity, the rest abdominal tergites with grey hairs mixed with black ones, the white fasciae obvious, the pygidial plate clear; legs with long grey hairs exteriorly & black interiorly. **Female:** 14-16 mm in length, face black with dense and long white hairs; thorax, the 1st and 2nd of abdominal tergites with grey hairs, the rest abdominal tergites with dense black hairs and with clear white fasciae.

Material examined: Without locality 19.5.1955 (2) (**Agric.Coll.**).

***Anthophora spinolana* Priesner** (Figures13-18)

Anthophora spinolana Priesner,1957, Bull. Soc. Entomol. Egypt, XLI: 49.

Diagnostic characters: Male (Figs.13-17): 14-16 mm in length, with white first antennal segment, clypeus and mandible; with white plumose hairs in thorax, the first two abdominal tergites and without black hairs; with raised black hairs only in the rest abdominal tergites, fasciae indistinct; with grey hairs and few brownish hairs exteriorly in the hind leg, the sternite with white fringe. **Female** (Fig.18): 14-16 mm in length, with black first antennal segment and face, the pilosity as in male but the female is darker, the last abdominal tergites have few ferruginous hairs.

Material examined: Abu Keer 18.3.1956 (3), 24.3.1998 (4) (**Ain.Coll.**) Borg El Arab 1.2.1926 (1) Paratype (**Alf.Coll.**), Helwan 4.1.1936 (5) (**Car.Coll.**)

Note: the paratype which was in the Agric. Coll. has been lost; Type in Priesner Collection.

Distribution: Lower Nile and Costal strip.

***Anthophora salwae* Rawda** (Figures 37-43)

Anthophora salwae Rawda, 2003, Egypt, Bull. Entomol. Soc. Egypt. (80): 1-4.

Diagnostic characters: Male: 13-15 mm in length, with black head (the first antennal segment, clypeus, labrum, mandibles and frontal sides); Glossa without lobes on its anterior part, the flabella have long finger like projections, the third antennal segment from 2.5-3 times as long as its width. Mentum 3.4-3.6 times as long as its width. Prementum 5 times as long as wide. Maxilla with 13 sharp stout dark teeth, 15 ventral branched hairs and dense hairs anteriorly. Frons with dense white hairs, vertex and thorax dorsally with few black hairs. Thorax with yellow tinge laterally, with long few white hairs ventrally. Fore leg has a distinct antennal cleaner (strigilis), chitinized velum and short spin, the mid leg without mid tarsal and mid-basi-tarsal brush, with mid-distitarsal brush, hind tibia enlarged distally, with droso-distal tibial process. Each leg with black hairs internally, white hairs exteriorly & a ring of white hairs at the base of each segment, abdomen with few white hairs and weak fasciae. **Genitalia:** Gonocoxite with dense hairs apicolaterally. Genital valve apex rectangular in shape, with blunt apex, with 1.75 as long as wide, genital bridge 1.5 times as long as wide; gonostylus 7 times as long as wide, the seventh sternite with apodeme 0.7 as long as the length of disc. The eighth sternite with few chitinization and rounded edge. The 7th tergite without teeth with short pygidial plate. **Female:** Is similar to male but the mid leg without tarsal brushes, hind leg with distinct a basitibial plate; legs with denser outer white hairs.

Material examined: St. Katherine 20.3.1997 (1 male Holotype, 1 female Allotype, 5 male Paratypes in Ain Shams coll., Entomology Dept., Faculty of Science, Cairo, Egypt).

Note: this species is named after the name of Professor Dr. Salwa kamal professor of Entomology, Ain Shams University.

Distribution: Sinai.

***Anthophora salamica* Rawda** (Figures 21-29)

Anthophora salamica Rawda, 2003, Egypt, Bull. Entomol. Soc. Egypt. (80): 4-7.

Diagnostic characters: Male (Figs.21-25): 14-16 mm in length, with yellow face (the 1st antennal segment, clypeus, labrum and mandibles) except the clypeal pits. Flabellum with finger like projection, antennae yellowish-red, 3rd antennal segment 5.5-6 times as long as wide. Mentum 3.5 times as long as wide, prtmmentum 4.5 times as long as wide, maxilla with brown teeth and few brown hairs anteriorly. Frons with whitish-yellow hairs, vertex and thorax with dense yellow hairs, tegula yellowish-red. Legs brown with brown hairs, with yellowish-white hairs on

the distal and apical ring of all tarsal segments on ventral sides. mid-distitarsal brush present, mid-tarsal brush weak, mid-basitarsal brush absent, abdomen brownish-black, with few brown hairs, indistinct fasciae and brown pygideal plate. **Genitalia:** Gonocoxite with curved, semicircular outer surface, with long Lateral process, three times as long as wide. Gonostylus 5 times as long as wide. 7th sternite with apodeme 0.5 as long as the length of disc, the apical part, with rectangular central delicate region. 8th sternite with sharp elongated spiculum and sharp edges. **Female** (Figs.26-29): Is similar to male, but the abdomen is larger, light brown in colour, with light brown hairs, fine yellow fasciae in the first three abdominal tergites, pygidial plate brown, with black carina. Legs have brown hairs. Hind leg with distinct first tarsal brush, the length of its hairs equals the length of the second tarsal segment.



Figs. (1-12): *A. albosignata*, (1-8): male, (1): adult, (2): head, (3): wing, (4): mid tibia, (5): thorax & abdomen, (6): gonocoxite, (7): 7th tergite, (8): 8th sternite, (9-12): female, (9): female, (10): head, (11): mid & hind leg, (12): abdomen.

Material examined: Sinai 20.3.1954 (1 female Holotype, 1 male Allotype, Ain Shams, collection Entomology Dept., Faculty of Science, Cairo, Egypt), St Katherine, 18.4.1997 (1 female Paratype).

Note: the name of this species is derived from Arabic word Salam which means (peace, tolerance, awarding, activity, surrender & submission to God) ideals that we have learned from the honey bee.

Distribution: Sinai.

Finally after the examination of the genitalia of the collected species it was found that:

1- *A. scopipes* Spinola, they have two apical processes, not like these species and so it transferred from this subgenus.

2- *A. arabica* Priesner 1957 become synonym to *A. pauperata* Walker, the Paratype are not found in Agriculture Collection.

3- *A. orientalis* Morawitz that characterized by their long and slightly curved pygidial plate were collected only by one female from St. Katherine March, 1996, this specimens is not found in all collections and not collected again, so it is with doubt occurrence in Egypt.

The two specimens of *A. rubricus* Dourrs in Agriculture Collection (27.2.1935) without locality, the differences in colour in collected species are only variation, with the same genitalia, so it become synonym to *A. albosignata* Friese .



Figs. (13-18): *A. spinolana*, (13-18): male, (13): adult, (14): head, (15): thorax, (16): mid leg, (17): abdomen, (18): female. Figs. (19 & 20): *A. flabellate* female (19): head, (20): legs. Figs. (21-29): *A. salamica*, (21-25): male, (21 & 22): adult dorsally & frontally, (23): genital gonocoxite, (24): 7th sternite, (25): 8th sternite, (26-29): female, (26 & 27): adult female dorsally & laterally, (28): head, (29): abdomen; Fig. (30): genital gonocoxite of *A. arida* male.



Fig. (31): *A. fascioides*, Figs. (32-35): *A. angolensis* female, (32): adult female, (33): head, (34): mid & hind leg, (35): abdomen; Fig. (36): *A. nigrilabris* male genital gonocoxite; Figs. (37-43): *A. salwae*, (37 & 38): adult male, (39): genital gonocoxite, (40): 7th sternite, (41): 8th sternite, (42): pygidial plate, (43): female; Figs. (44-47): *A. pauperata*, male (44 & 45): adult, (46): head, (47): gonocoxite.

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