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Ichneumonidae from the Suez Canal region Egypt (Hymenoptera, Ichneumonoidea)

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A b s t r a c t : A simple key for 43 ichneumonid species belonging to 29 genera and 11 subfamilies collected and recorded from the Suez Canal region is given. Faunistic data for each species are given. Seven species are recorded for the first time in Egypt. These are: *Anomalon kozlovi* (KOKUJEV) (Anomaloninae), *Diadegma fenestrata* (HOLMGREN), *D. maculata* (GRAVENHORST) (Campopleginae), *Mesostenus grammicus* GRAVENHORST (Cryptinae), *Syrphophilus bizonarius* (GRAVENHORST) (Diplazontinae), *Barichneumon bilunulatus* (GRAVENHORST) and *Ctenichneumon repentinus* (GRAVENHORST) (Ichneumoninae).

K e y w o r d s : Ichneumonidae, Hymenoptera, Suez Canal, Egypt.

Introduction

Ichneumonidae is one of the largest families of parasitic Hymenoptera with probably more than 100.000 species (GAULD 2002) distributed worldwide. Most of them occupy the temperate regions and the humid tropics, relatively few of them are present in hot, dry areas (GAULD 1983). The eastern Palaearctic and eastern Nearctic regions are especially rich in ichneumonid species (WAHL & SHARKEY 1993). The family currently comprises 37 subfamilies (YU & HORSTMANN 1997; QUICKE et al. 2009).

The majority of ichneumonid species are parasitoids attacking other insect groups and some arachnids in their various stages of development (GUPTA 1991; GHAHARI 2005). They have been used successfully as biocontrol agents and there is a huge potential for their utilization in managed biocontrol programs (GUPTA 1991).

Several studies concerning their economic importance and distribution in Egypt are common, such as SHALABY (1958), HAFEZ et al. (1976), TAWFIK et al. (1976), ABDELRAHMAN et al. (1977), EL-DAKROURY et al. (1977), GONZALEZ et al. (1980), HASSANEIN & EL-HENEIDY (1984/85), ABBAS (1988), TAWFIK (1993), MOUSA et al. (2001), EL-HENEIDY et al. (2001) and SAMAR et al. (2009).

Although the fauna of the Egyptian Ichneumonidae was previously studied by some authors (SHAUMAR 1966; AUBERT & SHAUMAR 1978 and AZAB 2007), but fauna of these important and powerful parasitoids was not perfectly studied in some regions in Egypt. So in this paper we present the result of a preliminary faunistic survey over three years (2007-2009) from Suez Canal region (including different districts of Suez canal and

North Sinai), to determine and investigate the ichneumonid species of this poorly studied region.

Material and Methods

The present study is based mainly on the material collected by regular survey of ichneumonid specimens over three years (2007-2009), covering different districts of the Suez Canal region (Ismailia, Fayed, East and west Qantara, El Tal El-Kebir (Suez canal region); El-Arish, El-Zaranik and some wadies (North Siani region)). The materials were collected by Malaise trap, sweep-net and light trap. Specimens were identified with the help of suitable keys (examples: KASPARYAN 1974; DELRIO 1975; AZIDAH et al. 2000; YU et al. 2005) , and sent to Dr. Gavin Broad (Natural History Museum, London) and Dr. Vladimir Gokhman (Moscow State University, Russia) for identification and/or confirmation. This is in addition to studying the specimens conserved in the different Egyptian collections: 1. Efflatoun Bey Collection (EFFLC) (Entomology Dept., Faculty of Science, Cairo University). 2. Faculty of Science Collection (AUC) (Ain Shams University). 3. Alfieri Collection (ALFC) (Faculty of Agriculture, Al-Azhar University). 4. Ministry of Agriculture Collection (MAC)(Plant Protection Institute, Dokki) and 5. The Entomological Society of Egypt collection (ESC).

Previous records from Egypt are taken from SHAUMAR (1966), AUBERT & SHAUMAR (1978) and AZAB (2007).

Photos were taken by Olympus camera (E420) attached to Olympus stereoscope (CZX9).

Results

A total of 43 species of 29 genera belonging to 11 subfamilies are listed. Seven species are recorded for the first time in Egypt. These are: *Anomalon kozlovi* (KOKUJEV) (Anomaloninae), *Diadegma fenestrata* (HOLMGREN), *D. maculata* (GRAVENHORST) (Campopleginae), *Mesostenus grammicus* GRAVENHORST (Cryptinae), *Syrphophilus bizonarius* (GRAVENHORST) (Diplazontinae), *Barichneumon bilunulatus* (GRAVENHORST) and *Ctenichneumon repentinus* (GRAVENHORST) (Ichneumoninae).

Key to the ichneumonid species of the Suez Canal region

- 1 Metasomal T₁ with spiracle at posterior third (fig. 1); first metasomal segment narrow at base, widened apically.....2
- Metasomal T₁ with spiracle around the middle of the tergite or at its anterior half (fig. 2); first metasomal segment either gradually widened or parallel-sided along its length 3232
- 2 Fore wing without areolet; disco-submarginal cell extending beyond vein 2m-cu (figs 3,5) [Subfamily Ophioninae].....3
- Fore wing with (fig. 11) or without areolet (fig. 4); disco-submarginal cell not extending beyond vein 2m-cu (fig. 4)9
- 3 Mandibles normal; disco-submarginal cell of fore wing without fenestra or sclerites (fig. 5)4

- Mandibles narrowed and twisted; disco-submarginal cell of fore wing with bare patch or fenestra, this fenestra is often with sclerites (fig. 3).....7
- 4 Head relatively longer than broad; ferruginous to dark-brown species.....*Ophion geyri*
- Head broader than long; yellowish to pale brown species5
- 5 Ramellus of disco-submarginal cell of forewing very short or absent; marginal cell of hind wing hairy proximally *Ophion luteus*
- Ramellus of disco-submarginal cell relatively long, if not, then marginal cell of hind wing glabrous proximally; scutellum ferruginous6
- 6 First sub-discal cell of forewing slightly narrow distally; 1Cu of hind wing joining cu-a closer to 1A than to M..... *Ophion obscuratus*
- First sub-discal cell of fore wing broadly narrow distally; 1Cu of hind wing joining cu-a closer to M than to 1A *Ophion andalusiacus*
- 7 Disco-submarginal cell of forewing with crescent-shape sclerite closer to a relatively long, slender sclerite distally *Enicospilus tournieri*
- Disco-submarginal cell with smaller sub-triangular sclerite than the distal one8
- 8 Second sub-discal cell of fore wing with glabrous arc behind Cu1 vein..... *Enicospilus ramidulus*
- Second sub-discal cell of fore wing with somewhat hairy arc; distal sclerite of disco-submarginal cell sub-circular *E. undulatus*
- 9 Propodeum not areolated, with coarse reticulate sculpturing (fig. 6) and often a distinct transverse basal carina; areolet of fore wing absent (fig. 4) [Anomaloninae] 10
- Propodeum usually areolated (fig. 7), or if mostly lacking carina, then sculptured, not areolated; areolet present or absent 12
- 10 Middle tibia with two apical spurs; labial palp 4-segmented *Barylypa amabilis*
- Middle tibia with a single apical spur (fig. 8); labial palp 3- or 4-segmented 11
- 11 Black to ferruginous species, with head and mesosoma conspicuously marked with red; clypeus rounded at apex *Anomalon cruentatum*
- Body not ferruginous, head and mesosoma mostly with whitish to yellowish; clypeus with medio-apical teeth or distinctly notched *Anomalon kozlovi*
- 12 Mesopleuron with sternaulus running for at least half its length (fig. 9) [Subfamily Cryptinae] 13
- Mesopleuron without sternaulus 18
- 13 Second recurrent vein of fore wing with 1-2 bullae; face of male rarely marked with white or yellow; propodeum usually areolated 14
- Second recurrent vein of fore wing with one bulla (fig.10); face of male usually marked with white or yellow; propodeum varies 17
- 14 Areolet of fore wing very small and narrow, rectangular (fig. 12); epomia relatively strong; first metasomal segment slender, with sub-basal lateral tooth 15
- Areolet of fore wing large, more or less pentagonal (fig. 11); epomia weak or absent; first metasomal segment stout 16
- 15 Propodeum black, sometimes with reddish hue posteriorly; coxae, trochanters and hind tibia black, 3rd and 4th hind tarsomeres peculiarly white; metasoma red with dark apex *Mesostenus transfuga*
- Propodeum reddish brown; legs reddish; metasoma entirely red *Mesostenus grammicus*
- 16 Body generally flavous with last metasomal tergite whitish *Synechocryptus sanguinolentus*
- Body black and red, with yellowish to whitish markings anterior to wings and on scutellum *Cryptus armator*
- 17 Outer face of mandible with a strong subbasal swelling; propodeum with a narrow transverse area superomedia; fore tarsus normal; black species with reddish metasomal T₂, T₃ and legs *Dichrogaster aestivalis*

- Outer face of mandible without such swelling; propodeum not as above; fore tarsus enlarged and spinose; black species except for a white spot on vertex *Meringops titillator orientator*
- 18 Posterior transverse mesosternal carina complete or rarely interrupted in front of each middle coxa 19
- Posterior transverse mesosternal carina absent or interrupted in front of each middle coxa [Subfamily Ichneumoninae] 30
- 19 Hind tibial spurs inserted in an area separated from that of tarsus, thus apex of tibia with a sclerotized bridge between the spurs; clypeus separated from face; face pale; (female entirely red and yellow, except only for the base of flagellum and petiole are black, male mainly black, marked with yellow and red) [Subfamily Cremastinae] *Eucremastus pugillator*
- Hind tibial spurs inserted in a common area with tarsus, thus apex of tibia with a membranous insertion area; clypeus usually confluent with face; face usually black [Subfamily Campopleginae] 20
- 20 First metasomal segment circular or depressed oval in cross section near to its base; metasomal T₁ without a lateral pit in front of 21
- First metasomal segment quadrate, trapizoidal or triangular in cross section near to its base; metasomal T₁ with or without a lateral pit in front of its spiracle 25
- 21 Eyes emarginate opposite antennal socket; ovipositor short; area dentipara of propodeum not defined by a carina 22
- Eyes weakly or not emarginate opposite antennal socket; area dentipara of propodeum usually defined by carinae 23
- 22 Body entirely black, with reddish legs *Casinaria trochanterator*
- Metasomal tergites bordered with red *Casinaria albipalpis aegyptiator*
- 23 Propodeum with areola and petiolar area combined forming a moderately deep concave furrow *Sinophorous xanthostoma*
- Propodeum with areola and petiolar area not forming such furrow 24
- 24 Apex of propodeum usually not reaching middle of hind coxa; apex of male clasper rounded or with very slight notch above; relatively stout species *Campoplex* sp.
- Apex of propodeum usually reaching beyond middle of hind coxa; apex of male clasper with weak to strong dorsal subapical notch; ovipositor long, about 3-4 times as long as apical depth of metasoma (fig. 13); slender species *Venturia canescens*
- 25 Propodeal carinae usually weak; ovipositor as long as or slightly longer than apical depth of metasoma *Hyposoter* sp.
- Propodeal carinae usually strong 26
- 26 Metasomal T₁ without glymma; areola of propodeum very small, triangular, broadly fused with petiolar area *Lemophagus curtus*
- Metasomal T₁ with glymma; propodeum with relatively elongated areola that is narrowly fused with petiolar area 27
- 27 Ovipositor distinctly shorter than hind tibia 28
- Ovipositor about as long as or longer than hind tibia 29
- 28 Area supermedia of propodeum broad; hind tibia with faint black bands near to base and apically; ovipositor black with orange tip; mandible with two equal teeth *Diadegma armillata*
- Area supermedia of propodeum angulated or pointed anteriorly; hind tibia entirely red; ovipositor dark along its entire length; mandible with upper tooth slightly longer than lower one *Diadegma semiclausum*
- 29 Metasomal tergites with distinct reddish markings *Diadegma maculata*
- Metasomal tergites entirely black; metasomal T₆ with deep emargination *Diadegma fenestrale*

- 30 Clypeus confluent with face, apical margin of clypeus grooved transversely; mandible usually with two teeth *Diadromus collaris*
- Clypeus separated from face by a groove; mandible usually with a single tooth.....31
- 31 A median fold present on all metasomal sternites excluding the last two (fig. 14)..... *Barichneumon bilunulatus*
- A median fold present on metasomal S_2 and S_3 in male (fig. 15), in female on S_{2-4} , other sternites sclerotized..... *Ctenichneumon* sp.
- 32 Clypeus confluent with face, whole surface strongly bulging and coarsely punctured (fig. 16) [Subfamily Metopiinae] *Exochus castaniventris*
- Clypeus separated from face by a groove (fig. 17), whole surface not bulging as above.....33
- 33 Hind wing with vein cu-a intercepted with Cu much closer to A than to M (fig. 18); upper tooth of mandible broad and subdivided, thus appearing tridentate (fig. 17) [Subfamily Diplazontinae].....34
- Hind wing with vein cu-a intercepted with Cu much closer to M than to A (fig. 19); mandible bidentate (fig. 20).....35
- 34 Metasomal T_2 and T_3 with postmedian transverse grooves (fig. 23); propodeum with strong carina (fig. 21); hind tibia banded with black and ivory (fig. 23)..... *Diplazon laetatorius*
- Metasomal T_2 and T_3 without postmedian transverse grooves; propodeum with micro-reticulations (fig. 22); hind tibia uniformly coloured..... *Syrphophilus bizonarius*
- 35 Mandibles strongly twisted; metasomal T_1 often with deep glymma (fig. 24); ovipositor short, simple, without notch or teeth; orange to brownish species [Subfamily Tryphoninae]..... *Netelia* spp.
- Mandibles not twisted; metasomal T_1 often with or without shallow glymma; ovipositor with apical teeth ventrally or sub-apical notch dorsally; (if all the previous features absent, then ovipositor long and flexible); black species, with or without pale markings.....36
- 36 Clypeus flattened, sometimes notched apically; ovipositor with ventral apical teeth (fig. 26), or front tibia with apical tooth and ovipositor with a notch; metasomal T_1 often sharply arising medially, with dorsal carina and heavily sculptured or flattened and shiny [Subfamily Pimplinae].....37
- Clypeus convex; ovipositor with dorsal notch (fig. 25) or plain; metasomal T_1 flat or gently curved dorsally, lacking dorsal carina [Subfamily Banchinae]..... *Exetastes syriacus*
- 37 Second metasomal segment broader than long; median longitudinal carina of propodeum distinct..... *Exeristes roborator*
- Second metasomal segment about as long as or slightly longer than broad; median longitudinal carina of propodeum indistinct.....38
- 38 Ovipositor hooked downward at tip; inner orbits of eyes in both sexes and face of male are mostly whitish to yellow *Apechthes quadridentata*
- Ovipositor straight along its entire length; inner orbits of eyes and face in both sexes entirely black.....39
- 39 Ovipositor longer than hind tibia; tarsal claws simple *Itoplectis alternans*
- Ovipositor shorter than hind tibia; tarsal claws pectinate.....40
- 40 Mesopleuron densely and closely punctuate, the punctures separated by a distance equal to their own diameters; pronotum with yellow stripe posteriorly; hind coxa black.... *Pimpla tourionella*
- Mesopleuron finely punctured, punctures separated by a distance equal to two or more their own diameters; pronotum without yellow stripe posteriorly.....41
- 41 Fourth tarsomere of front tarsus distinctly broader than long, deeply notched apically; ovipositor sheath about as long as or longer than hind tibia; hind tibia banded with red.... *Pimpla spuria*

- Fourth tarsomere of front tarsus about as long as broad, less notched apically; ovipositor sheath shorter than hind tibia; hind tibia banded with white.....*Pimpla contemplator*

Systematic checklist of the collected species

Subfamily *A n o m a l o n i n a e*

Anomalon cruentatum (GEOFFROY 1785)

Ichneumon cruentatus GEOFFROY 1785 - Entomolo. Paris. 1: 401.

M a t e r i a l : 1♀, Ismailia, 15.9.2007; 2♂♂, Arish, 15.9.2007; 1♂, Arish, 16.5.2008; 1♀, Ismailia, 2.11.2008.

D i s t r i b u t i o n : Middle and South Europe, Turkey, Kazakhstan, Middle Asia (as *Anomalon foliator*, KOLAROV 1995). In Egypt, this species is widely distributed all the year round.

**Anomalon kozlovi* (KUKOJEV 1915)

Nototrachys kozlovi KUKOJEV 1915 - Ann. Mus. Zool. Acad. Imp. Sci.: 535.

M a t e r i a l : 1♀, Ismailia, 2.11.2008.

D i s t r i b u t i o n : Romania, Russia Central, new to Egypt.

Barylypa amabile (TOSQUINET 1900)

Anomalon amabile TOSQUINET 1900 - Ann. Soc. Ent. Belg.: 151.

M a t e r i a l : 1♀, Arish, 16.5.2007.

D i s t r i b u t i o n : USSR, Eastern Europe, Egypt.

Subfamily *B a n c h i n a e*

Exetastes syriacus SCHMIEDEKNECHT 1910

E. syriacus SCHMIEDEKNECHT 1910 - Opusc. Ichn.: 1895.

M a t e r i a l : 1♀, Arish, 26.3.2007; 3♀♀, 26.4.2007; 1♀, Ismailia, 14.2.2008; 1♂, Arish, 25.3.2008.

D i s t r i b u t i o n : Nearctic region, North Africa, Egypt (Maadi (Helwan), Bahariah Oasis and Siwa Oasis (Libyan Deserts, 50 km east of the Libyan border)).

Subfamily *C a m p o p l e g i n a e*

Campoplex sp.

Black with orange legs; metasomal T₂ and T₃ with some ferruginous; antenna dark brown, scape pale below; mandibles orange with dark teeth.

Antenna 30-33 segmented, gradually shortened and tapered towards tip. Clypeus conflu-

ent with face. Mandibles with two equal teeth. Notauli present, complete, convergent posteriorly. Propodeum strongly reticulate, with fine punctures among reticulations, finely hairy. Fore wing with petiolate, rhombic areolet. Ovipositor long, gently curved along its whole length, with sub-apical notch.

Material: 5♀♀, 3♂♂, Arish, 15.2.2007.

***Casinaria albipalpis aegyptiator* AUBERT & SHAUMAR 1978**

C. albipalpis aegyptiator AUBERT & SHAUMAR 1978 - Bull. Soc. Ent. Mulhouse: 17.

Material: 2♀♀, Wadi Aeideb (N. Sianai), 28.2.1938 (MAC); 1♂, Rafah (N. Sinai), 6.11.2000 (MAC).

Distribution: Egypt (W. Cansisrob (Gabal Elba)).

***Casinaria trochanterator* AUBERT 1960**

C. trochanterator AUBERT 1960 - Bull. Soc. Ent. Mulhouse: 63.

Material: 1♂, Arish, 26.3.2007; 1♂, Arish, 20.12.2008.

Distribution: Corsica, France, North Africa, Egypt (Shoubra and El Marg (Cairo), Wadi ar Rayyan (Red Sea), Helwan).

***Diadegma armillata* (GRAVENHORST 1829)**

Campoplex armillata GRAVENHORST 1829 - Ichn. eur. 3: 514.

Material: 1♀, Arish, 1.11.2007.

Distribution: Australian region, Europe and Turkey (KOLAROV, 1995), Egypt (Tamiya (Fayoum), Wadi Aeidab and Wadi Garawi (south Helwan)).

****Diadegma fenestrata* (HOLMGREN 1860)**

Limneria fenestralis HOLMGREN 1860 - Svensk. Vet. Acad. Handl. 2: 59.

Material: 1♀, 1♂, Arish, 15.7.2007.

Distribution: Palaearctic region (KOLAROV 1995), new to Egypt.

****Diadegma maculata* (GRAVENHORST 1829)**

Campoplex maculate GRAVENHORST 1829 - Ichn. eur. 3: 536.

Material: 1♂, Ismailia, 5.6.2007; 1♀, 1♂, Arish, 16.10.2008.

Distribution: Western Europe, Turkey (KOLAROV 1995), Palaearctic and south-east to Sri Lanka and the Phillipines (AZIDAH et al. 2000); new to Egypt.

***Diadegma semiclausum* (HELLÉN 1949)**

Angetia semiclausa HELLÉN 1949 - Comm. Biol. 8: 20.

Material: 1♀, Arish, 15.6.2007.

Distribution: Palaearctic region (KOLAROV, 1995; AZIDAH et al. 2000), Egypt.

***Hyposoter* sp.**

Mostly black with orange legs (except middle and hind coxae), hind tibia banded with brown and ivory; basal third of hind metarsus, palpi, hind tibial spurs, front and middle tarsi (except their last segment) whitish.

Antenna with 38 flagellomeres. Clypeus thin, separated from face by a weak groove; apical margin rounded or convex. Mandibles with two equal teeth. Propodeum wider than long, strongly reticulate, with dense hairs especially laterally. Fore wing with closed areolet. Ovipositor short, erect, with dorsal sub-apical notch.

M a t e r i a l : 1♂, Arish, 26.4.2007; 4♂♂, Arish, 16.5.2007; 6♀♀, 2♂♂, Arish, 15.6.2007; 4♂♂, Arish, 15.7.2007.

***Lemophagus ?curtus* TOWNES 1965**

L. curtus Townes 1965 - Polski Pismo Entomol. **35**: 409.

M a t e r i a l : 1♀, Arish, 15.6.2007.

D i s t r i b u t i o n : Austria, Britain, Czech Republic, Danish mainland, Germany, French mainland, Italy, Poland, Romania, Ukraine, Russia Central, Sweden, previously unrecorded from Egypt.

***Sinophorus xanthostoma* (GRAVENHORST 1829)**

Campoplex xanthostoma GRAVENHORST 1829 - Ichn. eur. **3**: 460.

M a t e r i a l : 1♀, Ismailia, 14.2.2008; 1♀, Ismailia, 15.3.2008.

D i s t r i b u t i o n : Europe, North Africa, Turkey, Cyprus, Israel, Jordan, Armenia, Iran, Saudi Arabia (KOLAROV 1995). In Egypt, this species is widely distributed all the year round (recorded as *Campoplex (Eulimnerium) xanthostoma* GRAV. by EL-DAKROURY et al. 1977).

***Venturia canescens* (GRAVENHORST 1829)**

Campoplex canescens GRAVENHORST 1829 - Ichn. eur. **3**: 555.

M a t e r i a l : 2♀♀, 3♂♂, Arish, 1-15.8.2007; 1♀, Ismailia, 2.8.2008.

D i s t r i b u t i o n : Europe, Turkey, Caucasus, Middle Asia (KOLAROV 1995), Egypt (Azarita and Abu Kir (Alexandria), Shoubra (Cairo), Marsa Matrouh, Wadi Rabdet, Kafr Tisfa (Ad Daqahlia)).

Subfamily C r e m a s t i n a e***Eucremastus pugillator* SHAUMAR 1966**

E. pugillator SHAUMAR 1966 - Entomophaga **11** (5): 461.

M a t e r i a l : 1♂, 1♀, Suez Road, 20.4.1931 (ALFC).

D i s t r i b u t i o n : North Africa, Egypt.

Subfamily *Cryptinae*

Cryptus armator FABRICIUS 1804

C. armator FABRICIUS 1804 - Syst. Piez.: 26.

Material: 1♀, Arish, 26.3.2007; 1♀, Arish, 16.5.2007.

Distribution: Asian Turkey, Caucasian Russian Republic, Georgia, Armenia, Azerbaijan, Lebanon, Syria, Israel, Egypt, Arabian Peninsula, Iran, Iraq, Oriental Region, Egypt (King Mariut (Alexandria), El-Hammam (40km to the north-east of el-Faiyum), Borg Abu Sir, Giza, Wadi Salat, W. Aeideb (S. Sinai) (as *Pychocryptus armatorius*, AZAB 2007)).

Dichrogaster aestivalis (GRAVENHORST 1829)

Hemiteles aestivalis GRAVENHORST 1829 - Ichn. Eur. 2: 805.

Material: 1♂, 1♀, El-Arish (N.Sinai), 5.2007; 1♂, Wadi El-Arish (N. Sinai), 16.5.2007; 1♂, El-Arish (N. Sinai), 3.12.2008.

Distribution: Egypt (Ezbet El-Nakhl and Kafr Hakim, Siwa Oasis, W. El-Arish).

Meringopus titillator orientator (SHAUMAR 1966)

Cryptus titillator orientator SHAUMAR 1966 - Entomophaga 11 (5): 449.

Material: 1♀, Ismailia, 26.3.1929 (ALFC).

Distribution: Egypt (El-Ameriah, Hammam (N.Coast), Mansouriah, Kerdasa and Wadi Shallal (as *Pycnocyrtus titillator orientator*, AZAB 2007)).

**Mesostenus grammicus* GRAVENHORST 1829

M. grammicus GRAVENHORST 1829 - Ichn. eur. 2: 757.

Material: 1♂, Arish, 15.6.2007; 1♂, Arish, 15.7.2007; 1♀, Arish, 25.3.2008; 1♀, Ismailia, 25.3.2008; 1♀, Ismailia, 15.5.2008; 1♀, Arish, 31.5.2008; 1♂, Ismailia, 1.7.2008.

Distribution: Europe, Turkey, Middle Asia (KOLAROV 1995); new to Egypt.

Mesostenus transfuga GRAVENHORST 1829

M. transfuga GRAVENHORST 1829 - Ichn. eur. 2: 757.

Material: 1♀, Ismailia, 14.2.2008; 1♀, Ismailia, 15.3.2008; 2♀, 1♂, 30.3.2008.

Distribution: Asian Turkey, Caucasian Russian Republic, Georgia, Armenia, Azerbaijan, Lebanon, Syria, Israel, Jordan, Egypt (Sinai Peninsula), Arabian Peninsula, Iran, Iraq, N. Africa, Oriental region (KOLAROV & GHAFARI 2007), In Egypt (Kafr Hakim (Giza), Ismailia K6).

Synechocryptus sanguinolentus (BRULLÉ 1846)

Cryptus bovei BRULLÉ 1846 - Lep. Hym. 4: 199.

Material: 1♂, Wadi El-Arish to Hassana (N.Siani), 13.3.1937 (MAC).

Distribution: Egypt (Cairo, Kharga Oasis, Wadi Hekwal (Gabal Elba), Mansouriah (as *Pycnocyrtus bovei*, AZAB 2007)).

Subfamily *Diplazontinae*

Diplazon laetatorius (FABRICIUS 1781)

Ichneumon laetatorius FABRICIUS 1781 - Spec. Ins. 1: 424.

Material: This species was collected in a large number all the year round.

Distribution: Cosmopolitan.

**Syrphophilus bizonarius* (GRAVENHORST 1829)

Bassus bizonarius GRAVENHORST 1829 - Ichn. eur. 3: 350.

Material: 1♀, 1♂, Arish, 26.3.2007; 1♀, Arish, 16.5.2007.

Distribution: Holarctic (KOLAROV 1995), new to Egypt.

Subfamily *Ichneumoninae*

**Barichneumon bilunulatus* (GRAVENHORST 1829)

Ichneumon imitator KRIECHBAUMER 1882 - Entomol. Nachr. 8: 237.

Material: 1♂, Arish, 16.5.2007; 4♂♂, Arish, 15.7.2007; 1♀, Arish, 25.3.2008.

Distribution: Bulgaria, France, Poland, Russia Central, Spain, Morocco, Tunisia, Algeria, Europe, Azerbaijan, Georgia, Turkey, Kazakhstan, Iran (KOLAROV & GHAHARI 2008), new to Egypt.

**Ctenichneumon repentinus* (GRAVENHORST 1829)

Ichneumon repentinus GRAVENHORST 1829 - Mem. Acad. Sci. Torino 24: 275.

Material: 1♂, Arish, 16.5.2007; 3♂♂, Arish, 2-25.3.2008.

Distribution: Europe, Caucasus, Middle Asia, Siberia, Iran (KOLAROV 1995), Algeria, Iceland, Azerbaijan, Korea, Japan (KOLAROV & GHAHARI 2008), new to Egypt.

Diadromus collaris GRAVENHORST 1829

D. collaris GRAVENHORST 1829 - Ichn. Eur. 3: 201.

Material: 1♀, Wadi el Ghedeirat (N. Sinai), 24.5.1935 (ALFC).

Distribution: Europe, Turkey, Caucasus, Altay (KOLAROV 1995), Egypt.

Subfamily *Metopinae*

Exochus castaniventris BRAUNS 1826

E. castaniventris BRAUNS 1826 - Termez. Fuz. 19: 270.

Material: 1♀, Ismailia, 15.6.2007.

Distribution: Middle and South Europe, Turkey, Kazakhstan, Middle Asia, Egypt (as *E. erkini*, KOLAROV 1995), Egypt (Cairo as *E. meridionalis* SEYRIG, AZAB 2007).

Subfamily O p h i o n i n a e

***Enicospilus ramidulus* (LINNEAUS 1758)**

Ichneumon ramidulus LINNEAUS 1758 - Syst. Nat. **10**: 566.

M a t e r i a l : 1♂, Ismailia, 2.11.2008; 2♀, Ismailia, 17.11.2008.

D i s t r i b u t i o n : Palearctic region (KOLAROV 1995), Egypt (Kharga Oasis, Siwa Oasis, El-Kattash, Wadi Rabdet, El-Matana).

***Enicospilus tournieri* (VOLLENHOVEN 1879)**

Ophion tournieri VOLLENHOVEN 1879 - Pinacogr. B **8**: 61.

M a t e r i a l : 1♂, 1♀, Arish, 26.3.2007; 1♀, 1♂, Arish, 26.4.2007; 1♀, Arish, 16.5.2007.

D i s t r i b u t i o n : Palearctic Region (KOLAROV 1995), Egypt (Heliopolis (Cairo), Maadi (Helwan), Abu Rauwash, Kerdasa (Giza).

***Enicospilus undulatus* (GRAVENHORST 1829)**

Ophion undulatus GRAVENHORST 1829 - Ichn. Eur. **3**: 697.

M a t e r i a l : 1♀, Suez Road 6th tower, 5.3.1926 (ALFC).

D i s t r i b u t i o n : Egypt (Wadi Hoff, Ogret El-Sheikh).

***Ophion geyri* HAMBERMEHL 1921**

O. geyri HAMBERMEHL 1921 - Deut. Ent. Zeit. **1921**: 109.

D i s t r i b u t i o n : N. Africa, Egypt (Wadi Morrah, Kerdasa, Bir Tarfa (N. Sinai)).

***Ophion luteus* (LINNAEUS 1758)**

O. luteus LINNAEUS 1758 - Syst. nat. **10**: 506.

D i s t r i b u t i o n : Europe, Turkey, Egypt (St. Catherine (S. Sinai), Ismailia K6).

***Ophion obscuratus* FABRICIUS 1798**

O. obscuratus FABRICIUS 1798 - Ent. Syst. Suppl.: 273

M a t e r i a l : 1♀, Arish, 26.3.2007; 1♀, Ismailia, 2.2009.

D i s t r i b u t i o n : Palearctic region (KOLAROV 1995), Egypt (Wadi El Kohla (1700m south east Gabal Mousa, South Sinai), Mansouriah (Giza), Ismailia (Suez Canal region), Maamura (Alexandria), Wadi El-Rabaa, Wadi Sallal, Kerdasa, Wadi Aeidab, El-Zaraniq (N. Sinai), Banha, Wadi Cansisrob (Gabal Elba), El-Mallaha (N. Coast)).

***Ophion turcomanicus* SZEPLIGETI 1905**

O. turcomanicus SZEPLIGETI 1905 - Ann. Mus. Nat. Hungarici **3**: 521.

D i s t r i b u t i o n : Egypt (Cairo, El-Zaraniq (N. Sinai)).

Subfamily Pimplinae

Apechthis quadridentata (THOMSON 1877)

Pimpla quadridentata THOMSON 1877 - Opusc. Ent. 8: 749.

Distribution: Palaearctic region (KOLAROV 1995), Egypt (El-Zaraniq (N. Sinai)).

Itoplectis alternans (GRAVENHORST 1829)

Pimpla alternans GRAVENHORST 1829 - Ichn. Eur. 3: 201.

Distribution: Europe, Turkey, Caucasus, Altay (KOLAROV 1995), Egypt (Wadi Tlah (N. Siani)).

Exeristes roborator (FABRICIUS 1793)

Ichneumon roborator FABRICIUS 1793 - Ent. Syst. 2: 170.

Material: 1♀, Ismailia, 13.3.2007; 1♀, Ismailia, 30.3.2008.

Distribution: Palearctic region (KOLAROV 1995; KOLAROV & GAHARI 2006). In Egypt, this species is widely distributed.

Pimpla contemplator (MÜLLER 1776)

Ichneumon contemplator MÜLLER 1776 - Magy. Tud. Akad. Ent. Term. Kur. 13: 72.

Material: 1♀, 1♂, Arish, 10.5.2007; 1♂, Ismailia, 30.4.2008.

Distribution: European-Mediterranean (KASPARYAN 1974), Middle and South Europe, south part of eastern Europe, Caucasus, Turkey, Turkmenistan, Iran (KOLAROV & GAHARI 2006), Egypt (Tura, Maadi (Helwan), Ezbet el-Nakhl (Cairo)).

Pimpla spuria GRAVENHORST 1829

P. spuria GRAVENHORST 1829 - Ichn. eur. 3: 179.

Material: 1♀, 1♂, Arish, 26.3.2007; 1♂, Arish, 16.5.2007; 1♂, Arish, 25.3.2008.

Distribution: Europe, Turkey, Caucasus, Kazakhstan, Middle Asia, Italy, Iran, Egypt (KASPARYAN 1974; YU et al. 2005; KOLAROV & GAHARI 2006), Egypt (Kerdasa, Cairo, Kafr Hakim, Helwan, El-Mansouriah (Giza)).

Pimpla tourionella (LINNAEUS 1758)

Ichneumon tourionella LINNAEUS 1758 - Syst. nat. 10: 564.

Distribution: Palaearctic region (KOLAROV 1995), Egypt (El-Zaraniq).

Subfamily Tryphoninae

Netelia testacea (GRAVENHORST 1829)

Paniscus testacea GRAVENHORST 1829 - Ichn. eur. 3: 626.

Material: 1♀, Arish, 26.4.2007.

Distribution: Afghanistan, Austria, China, Finland, France, Germany, India, Italy, Japan, Korea, Romania, Russia, Switzerland (DELRIO 1975), Spain (BORDERO et al. 1988), Sweden, Turkey (SZEPLIGETI 1911), Egypt (El Kattash (as *N. fuscicarpus*, AUBERT & SHAUMAR 1978)).

***Netelia thoracica* (WOLDSTEDT 1880)**

Paniscus thoracica WOLDSTEDT 1880 - Stet. Ent. Zeit. **41**: 174.

Material: 1♀, Arish, 26.3.2007.

Distribution: North Africa, Egypt (El-Kattash (as *N. ahngeri*, AUBERT & SHAUMAR 1978)).

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Zusammenfassung

Ein Bestimmungsschlüssel für 43 Ichneumonidenarten aus 29 Gattungen und 11 Unterfamilien für das Gebiet des Suez Kanals wird vorgestellt. Faunistische Angaben für alle vorkommenden Arten werden angeführt, folgende 7 Arten erwiesen sich als neu für Ägypten: *Anomalon kozlovi* (KOKUJEV) (Anomaloninae), *Diadegma fenestrata* (HOLMGREN), *D. maculata* (GRAVENHORST) (Campopleginae), *Mesostemus grammicus* GRAVENHORST (Cryptinae), *Syrphophilus bizonarius* (GRAVENHORST) (Diplazontinae), *Barichneumon bilunulatus* (GRAVENHORST) und *Ctenichneumon repentinus* (GRAVENHORST) (Ichneumoninae).

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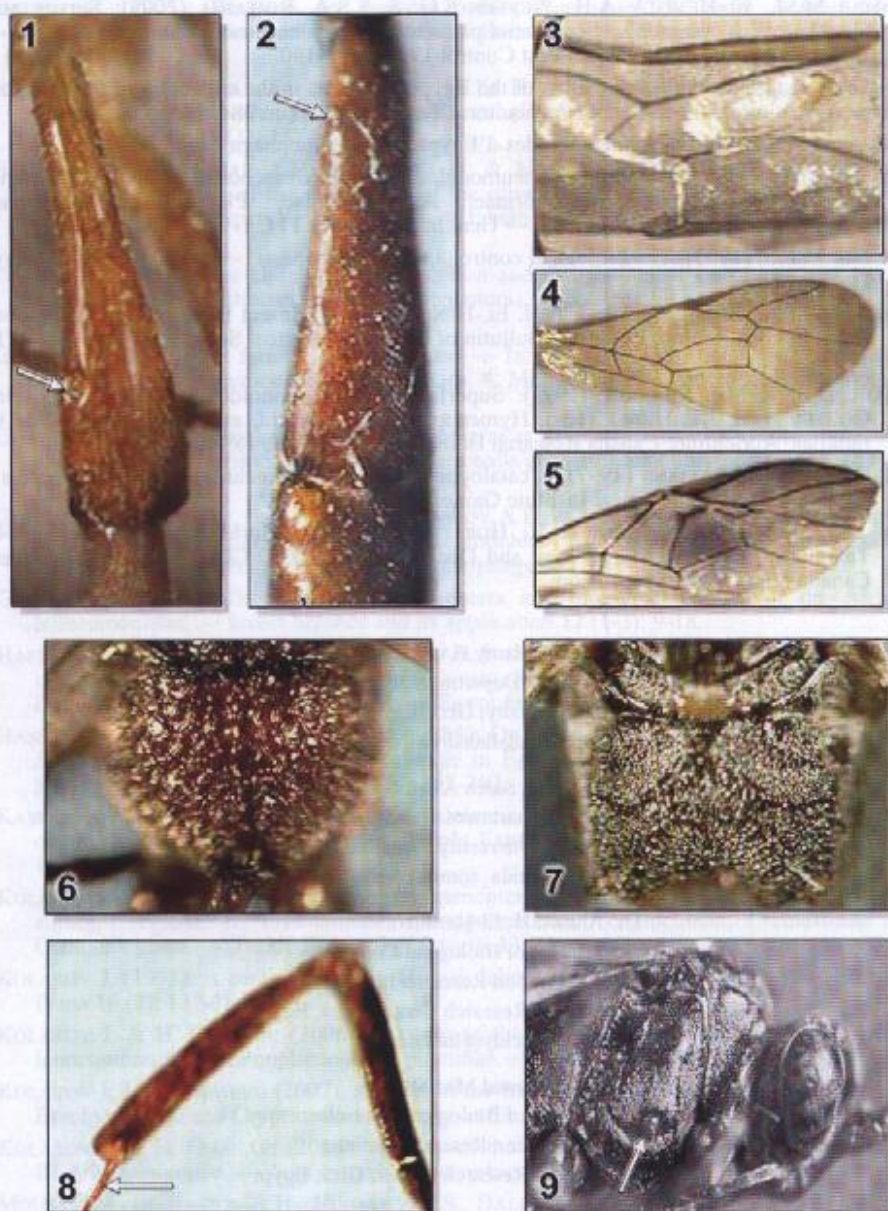


Fig. 1-9: (1) *Enicospilus tournieri*, first metasomal segment; (2) *Netelia thoracica*, first metasomal segment; (3) *Enicospilus* sp., part of fore wing; (4) *Anomalon cruentatum*, fore wing; (5) *Ophion obscuratus*, fore wing; (6) *A. cruentatum*, propodeum; (7) *Cryptus armator*, propodeum; (8) *A. cruentatum*, middle tibia; (9) *C. armator*, sternaulus on mesopleuron.

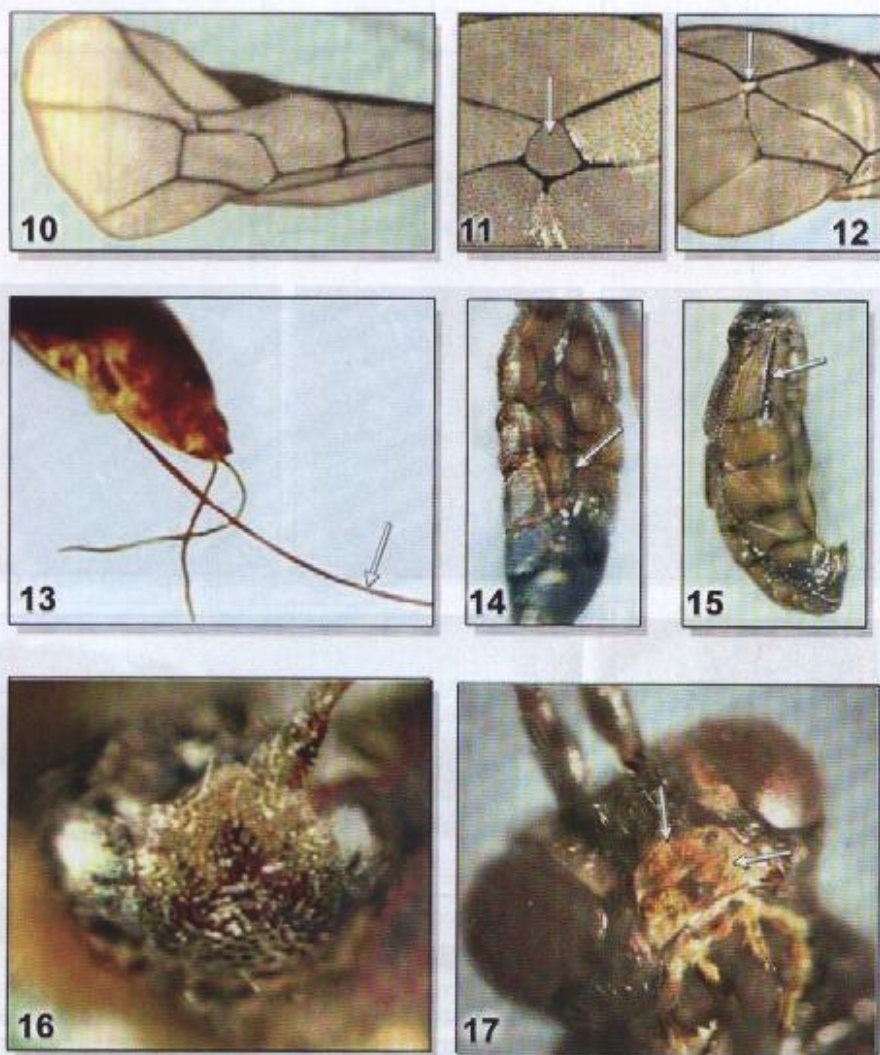


Fig. (10-17): (10) *Dichrogaster aestivalis*, fore wing; (11) *C. armator*, arcolet of fore wing; (12) *Mesostenus* sp., arcolet of fore wing; (13) *Venturia canescens*, ovipositor; (14) *Barichneumon* sp.; ventral aspect of metasoma; (15) *Ctenichneumon* sp., ventral aspect of metasoma; (16) *Exochus castaniventris*, frontal view of head; (17) *Diplazon laetatorius*, frontal view of head.

important and powerful parasitoids were not perfectly studied in some regions in Egypt. So in this paper we present the results of a preliminary faunistic survey over three years (2007-2009) from Suez Canal region, including different districts of Suez canal and

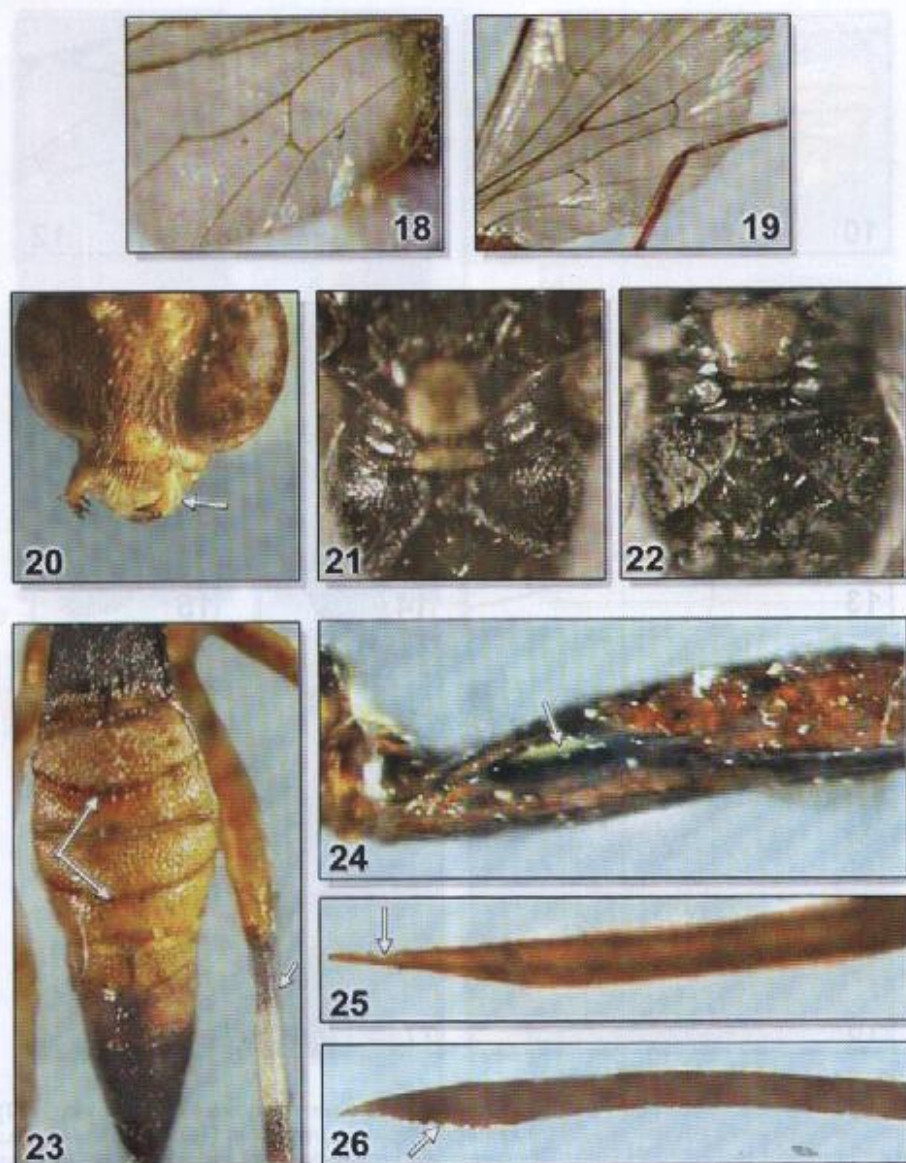


Fig. (18-26): (18) *D. laetatorius*, hind wing; (19) *Netelia* sp., hind wing; (20) *Netelia* sp., frontal view of head; (21) *D. laetatorius*, propodeum; (22) *Syrphophilus bizonarius*, propodeum; (23) *D. laetatorius*, dorsal aspect of metasoma; (24) *Netelia* sp., lateral aspect of first metasomal segment showing glymma; (25) *Exetastes syriacus*, ovipositor; (26) *Exeristes roborator*, ovipositor.