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Contribution to the knowledge of Chalcidoidea (Hymenoptera) of Biskra, Algeria

K. Djouama, F. Marniche, B. Doumandji–Mitiche, S. E. Doumandji

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Abstract

Contribution to the knowledge of Chalcidoidea (Hymenoptera) of Biskra, Algeria. We provide here a list of Chalcidoid wasps collected from the region of Biskra in the south east of Algeria in 2017. The list is comprised of 35 individuals classified into 17 species belonging Walker, 1839 (Chalcidoidea, Aphelinidae) and *Pachyneuron groenlandicum* Holmgren, 1872 (Chalcidoidea, Pteromalidae) are new records from Algeria. Biological data and geographical distributions of each species are mentioned.

Data published in GBIF (Doi: 10.15470/jx3ahv)

Key words: Checklist, Chalcidoidea, Distribution, Biskra, Algeria

Resumen

Contribución al conocimiento de los Chalcidoidea (Hymenoptera) de Biskra, Argelia. Este trabajo aporta una lista de avispas Chalcidoideas recolectadas en la región de Biskra, en el suroeste de Argelia, en 2017. Consta de un total de 35 individuos clasificados en 17 especies de Chalcidoideos pertenecientes a ocho familias e incluye cinco géneros registrados por primera vez en Argelia. *Aphelinus asychis* Walker, 1839 (Chalcidoidea, Aphelinidae) y *Pachyneuron groenlandicum* Holmgren, 1872 (Chalcidoidea, Pteromalidae) son asimismo nuevos registros en Argelia. Se consignan brevemente los datos bilógicos y la distribución geográfica de cada especie.

Datos publicados en GBIF (Doi: 10.15470/jx3ahv)

Palabras clave: Lista de comprobación, Chalcidoidea, Distribución, Biskra, Argelia

Resum

Contribució al coneixement dels Chalcidoidea (Hymenoptera) de Biskra, Algèria. Aquest treball aporta una llista de vespes Chalcidoidees recol·lectades a la regió de Biskra, al sud–oest d'Algèria, el 2017. Consta d'un total de 35 individus classificats en 17 espècies de Chalcidoideus pertanyents a vuit famílies i inclou cinc gèneres registrats per primera vegada a Algèria. *Aphelinus asychis* Walker, 1839 (Chalcidoidea, Aphelinidae) i *Pachyneuron groenlandicum* Holmgren, 1872 (Chalcidoidea, Pteromalidae) també són nous registres a Algèria. Es consignen breument les dades biològiques i la distribució geogràfica de cada espècie.

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Paraules clau: Llista de comprovació, Chalcidoidea, Distribució, Biskra, Algèria

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Khalida Djouama, Bahia Doumandji–Mitiche, Salah Eddine Doumandji, Zoology Departement, National Superior School of Agronomy, El Harrach, Algiers, Algeria. Faiza Marniche, Zoology Laboratory, Superior National Veterinary School, Algiers, Algeria.

*Corresponding author: Khalida Djouama. E–mail: khalida2.djouama@gmail.com
Reseach Gate profile: https://www.researchgate.net/profile/Khalida_Djouama
Linkedin: https://www.linkedin.com/in/kalida-djouama-a171b1176/

Introduction

Chalcidoidea is one of the largest and most diverse Hymenoptera superfamilies, morphologically and biologically. Currently it is known to contain 22 families, and more than 22,000 described species worldwide (Dale–Skey et al., 2016). Most species of this superfamily are parasitoids and are considered as the most important group in biological control. Several species have been associated with biocontrol programmes in Algeria (Doumandji–Mitiche, 1983; Doumandji–Mitiche and Idder, 1984; Doumandji–Mitiche and Doumandji, 1993; Tsankov et al., 1995; Idder et al., 2009; Rahim et al., 2016; Zamoum et al., 2017).

The Chalcidoidea fauna of Algeria have been little studied, with only a few species of this superfamily mentioned in some fragmentary studies (Bouček, 1956; Hedovist, 1967; Grahm, 1969; Baquero and Jordana, 2002; Zhu and Huang, 2002; Japoshvili and Noyes, 2006; Stojanova and Ghahari, 2009; Caleca, 2010; Peters and Baur, 2011; Talebi et al., 2011; Evans and Abd–Rabouand, 2013; Madl and Schwarz, 2014., Chehma and Laamari, 2014; Samin, 2015; Laamari and Chaouche, 2016; Lopes et al., 2016; Noyes, 2018).

Biskra is considered the vegetable garden and the main supplier of agricultural produce in Algeria and despite the area's wide diversity of natural habitats, data concerning this chalcidoid are lacking. The present study provides a list of the species recorded to date with the valid nomenclature, new distribution and host records based on bibliography.

Material and methods

Study area

The study area is located in the Saharan bioclimatic zone, where the winter is temperate and summers are hot and dry (fig. 1). The climatic conditions of the region favour a diversified agricultural practice. Samples were collected from various locations and habitats: Ain Naga (fields producing aromatic and medicinal plants), Ain Naga (Horaya) (vegetable cultivation), El Outaya (olive groves) and Tolga (palm groves).

Sampling method

This faunistic study was based on samples of Chalcidoids collected between December 2016 and August 2017. Sampling was performed by the main author using yellow pan traps and Malaise traps. The samples were preserved in 70% ethanol until their transfer to the

Fig. 1. Location of the study area: Ain Naga, Ain Naga (Horaya), El Outaya and Tolga in Biskra, Algeria.
Fig. 1. Localización del área de estudio: Ain Naga, Ain Naga (Horaya), El Outaya y Tolga en Biskra, Argelia.

laboratory. They were identified using available keys and the original descriptions (Graham, 1969; Gibson, 1986; Noyes and Valentine, 1989; Dawah and Rothfritz, 1996; Baquero and Jordana, 1999; Doğanlar and Mendel, 2007; Guerrieri and Viggiani, 2005; Yefremova et al., 2007; Dzhanokmen, 2009; Gómez et al., 2013; Bayegan et al., 2014; Shirley et al., 2017). The specimens are housed at the collection of the insectarium at the Ecole Nationale Supérieure Agronomique, El Harrach, Alger (hereafter ENSA coll.). Nomenclature is taken from Burks (1979), Ferrière and Delucchi (1957), Triapitsyn and Berezovskiy (2001), Delvare (2005), Japoshvili and Noyes (2006), Zimmermann and Schöller (2008), Dzhanokmen (2009), Dale–Skey et al. (2016), Ghahari and Doğanlar (2017), Shirley et al. (2017), Noyes (2018).

Results

The sampling enabled us to obtain 35 records (dataset published in GBIF as a datapaper, doi:10.15470/jx3ahv). The list of the recorded species is given below in alphabetic order according to family names (* genus and species recorded for the first time for Algeria).

Fig. 2. *Aphelinus asychis,* male.
Fig. 2. Aphelinus asychis, macho.

List of species

Family Aphelinidae Thomson, 1876
Subfamily Aphelininae Dalman, 1820

Genus *Aphelinus* Dalman, 1820

**** Aphelinus asychis*** Walker, 1839 (fig. 2)
A. affinis (Föster, 1841)

General distribution
Afro–Tropical: South Africa. Neartic: Canada, USA. Neotropical: Brazil, Chile. Oriental: Nepal, Pakistan. Palaeartic: Egypt, France, Germany, Italy, Japan, Morocco, Spain, Sweden, Turkey, United Kingdom (Shirley et al., 2017).

Distribution in Algeria
The species *Aphelinus asychis* is reported for the first time in Algeria.

Hosts
This species is reported by Shirley et al. (2017) to parasite: *Acyrthosiphon kondoi* Shinji, 1938; *A. Pisum* Harris, 1776; *Aphis gossypii* Glover, 1877; *A. Umbrella* Börner, 1950; *Brevicoryne brassicae* Linnaeus, 1758; *Chaetosiphon fragaefolii* Cockerell, 1901; *Diuraphis noxia* Kurdjumov, 1913; *Hyperomyzus lactucae* Linnaeus, 1758; *Myzus persica* Sulzer, 1776; *Rhopalosiphum maidis* Fitch, 1856; *Schizaphis graminum* Rondani, 1852; *Therioaphis trifolii* Monell, 1882; and *Toxoptera* sp. There are no current host records from Algeria.

Material examined
1♂, Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.23" N, 6º 7' 27.28" E, Djouama, 28 II 2017, yellow pan trap, ENSA coll.

Fig. 3. *Prochiloneurus aegyptiacus,* female.
Fig. 3. Prochiloneurus aegyptiacus*, hembra.*

Family Encyrtidae Walker, 1837
Subfamily Encyrtinae Walker, 1837

Genus *Prochiloneurus* Silvestri, 1915

Prochiloneurus aegyptiacus (Mercet, 1929) (fig. 3)
Achrysopophagus aegyptiacus Mercet, 1929

General distribution
Afrotropical: Democratic Republic of Congo, Eritrea, Ethiopia, Gabon, Ghana, Ivory Coast, Nigeria, South Africa, Tanzania, Togo. Oriental: India. Palaearctic: Afghanistan, Algeria, Egypt, Iran, Iraq, Israel, Italy, Turkmenistan, USSR (former), Yugoslavia (Evans and Abd–Rabou, 2013).

Distribution in Algeria
No available information on the distribution of this species in Algeria.

Hosts
Parasitoid of *Anagyrus* spp. (Hymenoptera: Encyrtidae) (Hesami and Fallahzadeh, 2004). Hyperparasitoid of *Maconellicoccus hirsutus* Green, 1980 (Hemiptera: Pseudococcidae) on *Morus alba* L. 1753 (Moraceae) (Fallahzadeh et al., 2007). This species is also reported as hyperparasitoids associated with Coleoptera (Coccinellidae): *Chilocorus bipustulatus* L., 1758; *Exochomus flavipes* Thunberg, 1781; *Hyperaspis aestimabilis* Mader, 1955; (Hemiptera, Coccidae): *Coccus hesperidum* L., 1758, *Saissetia coffeae* Walker, 1852; Pseudococcidae: *Ferrisia virgata* Cockerell, 1893; *Formicococcus njalensis* Laing,1929; *Maconellicoccus hirsutus* Green, 1908; *Nipaecoccus viridis* Newstead, 1894; *Octococcus africanus* Brain,1915; *Pedrococcus* sp., *Phenacoccus manihoti* Matile–Ferrero, 1977; *Phenacoccus* sp., *Planococcus citri* Risso, 1813; *P. ficus* Signoret, 1875, *P. kenyae* Le Pelley, 1935, *Pseudococcus cryptus* Hempel, 1918; Hymenoptera (Encyrtidae): *Anagyrus kivuensis* Compere, 1939; *A. pseudococci* Girault, 1915; *Clausenia purpurea* Ishii, 1923; *Epidinocarsis lopezi* De Santis, 1964; *Gyranusoidea tebygi,* Noyes, 1988; *Homalotylus flaminius* Dalman, 1820; *H. quaylei* Timberlake, 1919; *Leptomastix bifasciata* Mercet, 1927; Pteromalidae: *Metastenus* sp. (Evans and Abd–Rabou, 2013).

Fig. 4. *Syrophophagus aphidivorius*, female.
Fig. 4. Syrophophagus aphidivorius*, hembra.*

Materiel examined
1♀ Algeria, Biskra: Ain Naga, 1 m, 34º 41' 15,526" N, 6º 6' 3,238" E, Djouama, 26 III 2017, yellow pan trap, ENSA coll.

Genus *Syrphophagus* Ashmead, 1900

Syrphophagus aphidivorus (Mayr, 1876) (fig. 4)
Encyrtus aphidivorus Mayr, 1876

General distribution
Neartic: Mexico, USA. Neotropical: Argentina, Brazil, Chile, Mangolia, Puerto Rico, Peru. Oriental: India, Hawaii. Palaearctic: Algeria, Armenia, Austria, Azerbaijan, Bulgaria, Czech Republic, Egypt, France, Greece, Germany, Georgia, Holland, Hungary, Iraq, Italy, Jordan, Moldovia, Russia, Slovakia, Spain, Turkey, Turkmenistan, United Kingdom, Ukraine, Yugoslavia (Noyes, 2018).

Distribution in Algeria
Region of Biskra (Hemidi et al., 2013).

Hosts
Agromyzidae (Diptera), *Leucopis obscura* Haliday, 1833 (Diptera, Chamaemyiidae), *Trialeurodes vaporariorum* (Homoptera, Aleyrodidae) and species of Homoptera (Aphididae) (Noyes, 2018). In Algeria this species was recorded as a secondary parasitoid of aphids (*Aphis gossypii*) (Hemidi et al., 2013).

Materiel examined
1♀, 1♂, Algeria, Biskra: Ain Naga (Horaya), 2 m, 34º 41' 31,734" N, 6º 6' 52.269" E, Djouama, 18 II 2017, yellow pan trap, ENSA coll.

Fig. 5. *Closterocerus* sp. indet., female.
Fig. 5. Closterocerus *sp. indet., hembra.*

Family Eulophidae Westwood, 1829
Subfamily Entedoninae Förster, 1856

*** Genus *Ceranisus* Walker, 1842**

***Ceranisus* sp.** indet. (fig. 5)

General distribution
Afrotropical: Tanzania. Nearctic: Canada, USA. Neotropical: Mexico, Panama, Venezuela, Trinidad, Tobago. Oriental: India, Nepal, Taiwan, Thailand. Palaearctic: Czechoslovakia, Japan, Spain (Canary Islands), Switzerland, Peoples' Republic of China (Beijing) (Noyes, 2018).

Distribution in Algeria
Recorded for the first time

Host
Primary hosts: Lepidoptera: Nepticulidae (*Stigmella juglandifoliella* Clemens, 1861). There are no current host records in Algeria.

Material examined
2♀♀ Algeria, Biskra: Ain Naga (Horaya), 2 m, 34º 41' 30,646" N, 6º 6' 52,708" E, Djouama, 25 V 2017, yellow pan trap, ENSA coll. 1♀ Algeria, Biskra: Ain Naga (Horaya), 2 m, 34º 41' 30.352" N, 6º 3' 54.007" E, Djouama, 10 IV 2017, yellow pan trap, ENSA coll.

Fig. 6. *Ceranisus* sp. indet., female.
Fig. 6. Ceranisus *sp. indet., hembra.*

*** Genus *Cheiloneurus* Westwood, 1833**

***Cheiloneurus* sp.** indet. (fig. 6)

General Distribution
Cosmopolitan species (Noyes, 2018)

Distribution in Algeria
Recorded for the first time

Hosts
Parasitoid of Coleoptera (Chrysomelidae, Coccinelidae); Hemiptera (Aphididae, Asterolecaniidae, Coccidae, Delphacidae, Diaspididae, Eriococcidae, Kermesidae, Psyllidae); Neuroptera (Chrysopidae) (Noyes, 2018). No current host record in Algeria.

Materiel examined
1♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.23" N, 6º 7' 27.28" E, Djouama, 26 V 2017, yellow pan trap, ENSA coll. 2♀♀ Algeria, Biskra: Ain Naga, 2 m, 34º 41' 4.23" N, 6º 7' 27.28" E, Djouama, 10 IV 2017, yellow pan trap, ENSA coll.

Subfamily Eulophinae

Genus *Pnigalio* Schrank, 1802

Pnigalio mediterraneus Ferrière and Delucchi, 1957 (fig. 7)
Pnigalio agraules Walker, 1839

General distribution
Palaearctic: Algeria, Austria, Croatia, Greece, Crete, France, Israel, Italy, Libya, Moldova, Portugal, Russia, Spain, Tunisia, Turkey, Yugoslavia (Noyes, 2018).

Fig. 7. *Pnigalio mediterraneus,* female.
Fig. 7. Pnigalio mediterraneus*, hembra.*

Distribution in Algeria
Region of Rouiba, Algiers (Doumandji–Mitiche et al., 1999).

Hosts
Pnigalio mediterraneus seems to have a broader host–range (Gebiola et al., 2014). In Noyes (2018), this species is reported to parasites Coleoptera (Coccinelidae, Curculionidae), Lepidoptera (Gracillaridae, Lyonetiidae, Tischeriidae, Yponomeutidae). The species could be a secondary parasite of Hymenoptera (Braconidae, Eulophidae and Euplemidae). In Algeria *P. mediterraneus* is reported as a local parasitoid of *Phyllocnistis citrella* Stainton, 1856 on lemon and orange trees (Doumandji–Mitiche et al., 1999).

Material examined
2♀♀ Algeria, Biskra: El Outaya, 248 m, 35º 1' 12,124" N, 5º 36' 25.654" E, Djouama, 01 II 2017, Malaise trap, ENSA coll.

Subfamily Opheliminae Ashmead, 1904

Genus *Ophelimus* Haliday, 1844

Ophelimus maskelli Ashmead, 1900
Pteroptrix maskelli Ashmead, 1900

General distribution
Palaearctic: Algeria (Caleca, 2010), France (EPPO, 2006), Israel (Mendel et al., 2005), (Kavallieratos et al., 2006), Portugal (Branco et al., 2009), Tunisia (Dhahri et al., 2010), Turkey (Doganlar and Mendel, 2007).

Distribution in Algeria
Béjaïa, Algeria (Caleca, 2010).

Hosts
Plants: *Eucalyptus globulus*, Labill, 1800 and *E. gunnii*, Hook (Caleca, 2010).

Fig. 8. *Tetramesa* sp. indet., male.
Fig. 8. Tetramesa *sp. indet., macho.*

Material examined
2♀♀ Algeria, Biskra: El Outaya, 248 m, 35º 1' 13.358" N, 5º 36' 23.981" E, Djouama, 23 VI 2017, Djouama, Malaise trap, ENSA coll. 2♀♀ Algeria, Biskra: Tolga (Lichana), 152 m, 34º 43' 58.738" N, 5º 26' 11.823" E, Djouama, 25 VI 2017, yellow pan trap, ENSA coll.

Family Eurytomidae Walker, 1832
Subfamily Eurytominae Walker, 1832

*** Genus Tetramesa Walker, 1848**

***Tetramesa* sp. indet.** (fig. 8)

General distribution
Oriental: India (Odisha). Nearctic: New Mexico, USA (Idaho, Oregon). Palaearctic: Bulgaria, Germany, Japan, Spain (Canary Islands), France, Moldova (Noyes, 2018).

Distribution in Algeria
Recorded for the first time

Hosts
Primary hosts: Diptera: Cecidomyiidae (*Orseolia* sp.).

Material examined
1♂ Algeria, Biskra: Ain Naga (Horaya), 25 m, 34º 41' 31.774" N, 6º 3' 53.751" E, Djouama, 28 XII 2016, yellow pan trap, ENSA coll.

Genus *Eurytoma* Illiger, 1807

* ***Eurytoma rosae*** Nees, 1834 (fig. 9)
Eurytoma pubicornis Boheman, 1836

General distribution
Neotropical: Argentina. Oriental: Malaysia. Palaearctic: Andorra, Armenia, Austria, Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Greece, Hungary, Iran, Italy,

Fig. 9. *Eurytoma rosae,* male.
Fig. 9. Eurytoma rosae*, macho.*

Kazakhstan, Netherlands, Peoples' Republic of China, Poland, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom, Yugoslavia (former) (Stojanova and Ghahari, 2009).

Distribution in Algeria
Recorded for the first time.

Hosts
This species was reported in Central and south Europe as parsitoid of Cynipidae forming galls in *Rosa*, *Quercus* and *Acer*, also it was reported as parasite of *Dacus* (Diptera). In Algeria there is no host information.

Material examined
1♂ Algeria, Biskra: Tolga (Lichana), 152 m, 34º 43' 58.706" N, 5º 26' 9.022" E, Djouama, 15 VII 2017, yellow pan trap PT, ENSA coll.

Genus *Sycophila* Walker, 1871

Sycophila sp. indet.

General distribution
Afrotropical: Benin, Gabon, Ivory Coast. Nearctic: USA. Neotropical: Brazil. Oriental: Hawaii, India (Noyes, 2018). Palaearctic: Algeria (Benia and Bounechada, 2013), Bulgaria, France, Japan, Peoples' Republic of China, Spain, Turkey (Noyes, 2018).

Distribution in Algeria
Sycophila binotata is the only recorded species of the *Sycophila* genus from Algeria. It was reported from Tafat national forest situated in Djebel Tafat in the department of Bougaa, North West of the of Setif city (Benia and Bounechada, 2011).

Fig. 10. *Anagrus* sp. indet., male.
Fig. 10. Anagrus *sp. indet., macho.*

Hosts
Sycophila species is as koinobiont endoparasitoids of cynipid gall communities (Claridge 1961 in Gómez et al., 2013). There is no current host information in Algeria.

Material examined
1♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.23" N, 6º 7' 27.28" E, Djouama, 28 II 2017, yellow pan trap, ENSA coll.

Family Mymaridae Haliday, 1833
Subfamily Alaptinae Perkins, 1912

*** Genus *Anagrus* Haliday, 1833**

Anagrus sp. indet. (fig. 10)

General distribution
Afrotropical: Cape Verde Islands, Yemen. Indo–Autralian: New Zealand. Nearctic: Canada, USA. Neotropical: Argentina, Chile. Oriental: Pakistan. Palaearctic: Austria, Belgum, Bulgaria, Croatia, Denmark, Egypt, Finland, France, Germany, Greece, Iran, Israel, Italy, Kyrguzstan, Korea, Macedonia, Moldova, Peoples' Republic of China, Poland, Serbia, Spain, Sweden. Switzerland, Turkey, Turkmenistan, United Kingdum, Yugoslavia (Noyes, 2018). This species is nearly cosmopolitan (Hilburn et al., 1990).

Distribution in Algeria
Recorded for the first time. This species belongs to the *A. Atomus* species group, identification at species level of individuals belonging to this genus is often difficult due to the paucity of diagnostic characters and morphological variability within species (Triapitsyn et al., 2010).

Fig. 11. *Mymar taprobanicum,* female.
Fig. 11. Mymar taprobanicum*, hembra.*

Hosts
Natural enemy of *Empoasca* leafhoppers (Letourneau, 1990). No current host in Algeria.

Material examined
1♂ Algeria, Biskra: Ain Naga (Horaya), 1 m, 34º 41' 28.056" N, 6º 3' 49.332" E, Djouama, 28 I 2017, yellow pan trap, ENSA coll. 1♂ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.23" N, 6º 7' 27.28" E, Djouama, 15 II 2017, yellow pan trap, ENSA coll.

Subfamily Mymarinae Haliday, 1833

*** Genus *Mymar* Curtis, 1829**

**** Mymar taprobanicum*** Ward, 1875 (fig. 11)
Mymar tyndalli Girault, 1912

General distribution
Afro tropical: Ivory Coast, Kenya, South Africa. Indo–Australian: Australia, New Zealand. Nearctic: USA. Oriental: India, Sri Lanka, Taiwan. Neotropical: Colombia, Puerto Rico. Palaearctic: Spain, Egypt, France, Greece, Italy, Japan, Morocco, Romania, Russia, Spain, Madagascar (Noyes, 2018).

Distribution in Algeria
Recorded for the first time

Hosts
This species is reported by Triapitsyn and Berezovskiy (2001) as paraitoids of *Laodelphax striatella* Fallén (Delphacidae) and *Nilaparvata lugens* (Stel) (Delphacidae) (Chandra, 1980). No current host in Algeria.

Fig. 12. *Pachyneuron groenlandicum,* female.
Fig. 12. Pachyneuron groenlandicum*, hembra.*

Material examined
1♀ Algeria, Biskra: Ain Naga (Horaya), 2 m, 34º 41' 27.957" N, 6º 3' 52.585" E, Djouama, 28.I.2017, yellow pan trap, ENSA coll. 1♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.54" N, 6º 7' 27.825" E, Djouama, 02 II 2017, yellow pan trap, ENSA coll.

Family Pteromalidae Dalman, 1820
Subfamily Pteromalinae Dalman, 1820

Genus *Pachyneuron* Walker, 1833

* **Pachyneuron groenlandicum** (Holmgren, 1872) (fig. 12)
Pachyneuron umbratum Delucchi, 1955

General distribution
Nearctic: Greenland. Oriental: India (Gupta and Poorani, 2008). Palaearctic: Belgum, Bulgarian Czech Republic, Czechoslovakia, France, Germany, Iran, Italy, Japan, Kazakhstan, Korea, Netherlands, South Moldovia, Peoples' Republic of China, Poland, Romania, Slovakia, Sweden, Switzerland, Turkey, United Kingdom, USSR, Siberia, Yemen (Noyes, 2018).

Distribution in Algeria
Recorded for the first time

Hosts
Known as a primary parasitoid of various insects belonging to families Chloropidae, Psilidae, Syrphidae, Aphididae, Coccidae and Noctuidae, and as hyperparasitoid of Braconidae (Noyes, 2018). Gupta and Poorani (2008) reported this species as parasitoid of the Hemerobiidae *Ischiodon* sp. on *Cassia* sp., and Syrphids associated with *Brachycaudus* sp. No current host record in Algeria.

Material examined
1♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.23" N, 6º 7' 27.28" E, Djouama, 28 III 2017, Malaise trap, ENSA coll. 1♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4,262" N, 6º 7' 27.811" E, Djouama, 25 IV 2017, Malaise trap, ENSA coll.

Fig. 13. *Pachyneuron* sp. indet., female.
Fig. 13. Pachyneuron *sp. indet., hembra.*

***Pachyneuron* sp.** indet. (fig. 13)

Material examined
1♀ Algeria, Biskra: Tolga (Lichana), 152 m, 34º 43' 59.849" N, 5º 6' 10.263" E, Djouama, 16 VII 2017, yellow pan trap, ENSA coll.

Genus *Sphegigaster* Spinola, 1811

Sphegigaster stepicola Bou**č**ek, 1965 (fig. 14)
Acroclisis melanogromyzae, Mani, 1971

General distribution
Oriental: India. Palaeartctic: Algeria, Austria, Bulgaria, Crotia, Crechoslovakia, Czech Reublic, Ethiopia, Hngary, Iran, Italy, Kazakhstan, Moldova, Morocco, Peoples' Repubic of China, Romania, Slovakia, Thailan, Trandcaucasus, Romania, Yugoslavia (Federal Republic) (Noyes, 2018).

Distribution in Algeria
This species was found especially in the steppe regions (Andriescu and Mitroiu, 2001).

Hosts
Parasitoids of Diptera Agromyzidae (Noyes, 2018). There are no host records from Algeria.

Material examined
2♀♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 3.722" N, 6º 7' 27.342" E, Djouama, 28 IV 2017, yellow pan trap, ENSA coll.

Fig. 14. *Sphegigaster stepicola,* female.
Fig. 14. Sphegigaster stepicola*, hembra.*

Family Torymidae Walker, 1833
Subfamily Toryminae Walker, 1833

Genus *Podagrion* Spinola, 1811

Podagrion pachymerum (Walker, 1833) (fig. 15)
Cleptimorpha binotata Walker, 1872

General distribution
Oriental: India. Palaearctic: Algeria, Austria, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Iran, Italy, Madeira, Moldova, Poland, Romania, Slovakia, Spain, Syria, Ukraine (Lotfalizadeh and Gharali, 2005).

Distribution in Algeria
This species emerged from oothecae found in El Kantara (Biskra) and was common in small, dry watercourses (Oueds) (Williams, 1914).

Hosts
This species is known as a parasite of praying mantid egg cases (Leroy et al., 1936; Breland, 1941), In Algeria this species was reared from *Blepharopsis mendica* (Fabricius, 1775) (Leroy et al., 1936).

Material examined
4♀♀ Algeria, Biskra: Ain Naga (Horaya), 2 m, 34º 41' 28.116" N, 6º 3' 53.764" E, Djouama, 01 III 2017, Malaise trap. ENSA coll. 2♀♀ Algeria, Biskra: Ain Naga, –2 m, 34º 41' 4.02" N, 6º 7' 28.695" E, Djouama, 16 IV 2017, yellow pan trap, ENSA coll.

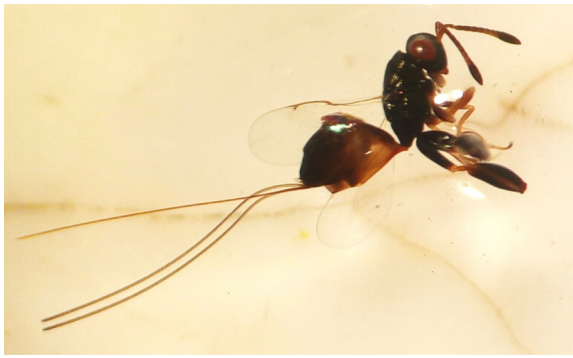

Fig. 15. *Podagrion pachymerum,* female.
Fig. 15. Podagrion pachymerum, *hembra.*

Family Trichogrammatidae Haliday, 1851
Subfamily Trichogrammatinae Haliday, 1851

Genus *Trichogramma* Westwood, 1833

Trichogramma embryophagum Westwood, 1833 (fig. 16)

General distribution
Nearctic: USA. Neotropical: Chile, Netherlands. Oriental: India (Jammu And Kashmir), Taiwan, Vietnam. Palaearctic: Albania, Algeria, Armenia, Austria, Belarus, Czech Republic, Czechoslovakia, France (Corsica), Georgia, Germany, Greece, Hungary, Iran, Israel, Italy, Kazakhstan (Tselinograd, Kirgizia), Latvia, Moldova, Norway, Peoples' Republic of China, Poland, Portugal, Romania, Russia, Slovakia, Spain, Ukraine, Yugoslavia (Noyes, 2018).

Distribution in Algeria
This species was introduced against *Ectomyelois ceratoniae* Zeller (Lepidoptera, Pyralidae) in a carob tree field (El Alia, Algeris) and in palm grove Ouargla (South Algerian) (Doumandji–Mitiche, 1983); Djurdjura Mountain (Tala–Guilef) (Rahim et al., 2016); Algerian cedar forests, Bordj Bounaama (Ouarsenis), National Tissemsilt, Blida,Tizi Ouzou, Djurdjura (Bouira), Col Telmet (Batna), Ras Keltoum (Khenchela) (Zamoum et al., 2017).

Fig. 16. *Trichogramma embryophagum,* female.
Fig. 16. Trichogramma embryophagum*, hembra.*

Hosts
Egg parasitoid of the grape berry moth in Iran (Lotfalizadeh et al., 2012). In Algeria this species was recorded as an egg parasitoid of *Ectomyelois ceratoniae* (Doumandji–Mitiche, 1983) and as an egg parastoid of *Thaumetopoea bonjeani* Powell, 1922, and *T. pityocampa* (Denis and Schiffermüller, 1775) by Rahim et al. (2016).

Material examined
1 ♀, Algeria, Biskra: Ain Naga, –2 m, 34º 41' 3.938" N, 6º 7' 28.415" E, Djouama, 28 I 2017, yellow pan trap, ENSA coll.

Discussion

This paper reports 17 Chalcidoidea species belonging to eight families collected from Biskra (Algeria). Situated in northwestern Africa on the Mediterranean Sea, Algeria has unique habitats for Chalcidoidea fauna. The species is poorly studied in Algeria, with very few papers dealing with Algerian Chalcidoidea published to date. Five species have been recorded by Hedovist (1967), three species were mentioned by Hemidi et al. (2013), five species belonging to the Leucospidae family were reported by Madl and Schwarz, 2014; one encyrtid and two pteromalids were reported in by Chehma and Laamari (2014), and four species by Laamari and Chaouche, 2016. In the most recent catalogues of the Chalcidoidea species listed for Algeria, compiled by Noyes (2018), only 214 species were mentioned, and some of the new species were not included therein (table 1). As most of these species are of economic relevance, more research on this group is required. We consider that this paper will draw attention to the richness of the diversity and the importance of this superfamily in Algeria, especially in Biskra, and will hopefully lead to the observation and identification of additional samples.

Table 1. List of the new records of Chalcidoid for the region of Biskra (Algeria).
Tabla 1. Lista de los nuevos registros de Chalcidoideos de la región de Biskra (Argelia).

Family	Species
Aphelinidae	*Aphelinus asychis*
Eulophidae	*Ceranisus* sp.
	Cheiloneurus sp.
Eurytomidae	*Tetramesa* sp.
	Eurytoma rosae
Mymaridae	*Anagrus* sp.
	Mymar aprobanicum
Pteromalidae	*Pachyneuron groenlandicum*

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