

## MYMARID WASPS (HYMENOPTERA, CHALCIDOIDEA, MYMARIDAE) NEW TO ROMANIAN FAUNA

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**Abstract.** In this paper we present 11 new species for the Romanian fauna: *Alaptus pallidornis* (Forster, 1856); *Anagrus (A.) breviphragma* (Soyka, 1955); *Anagrus (A.) similis* (Soyka, 1955); *Anaphes (A.) aries* (Debauche, 1948); *Anaphes (P.) leptoceras* (Debauche, 1948); *Erythmelus (E.) lygivorus* (Viggiani & Jesu, 1985); *Erythmelus (P.) rex* (Girault, 1911); *Erythmelus (E.) soykai* (Donev, 1998); *Ooctonus hemipterus* (Haliday, 1833); *Ooctonus isotomus* (Mathot, 1969); *Ooctonus notatus* (Walker, 1846). The subgenus *Parallelaptera* (Enock, 1909) of the genus *Erythmelus* (Enock, 1909) is cited for the first time in Romania.

**Keywords:** *Mymaridae*, fauna, taxonomy, Romania.

**Rezumat.** Mimaride (Hymenoptera, Chalcidoidea, Mymaridae) noi pentru fauna României. În această lucrare noi prezentăm 11 specii noi pentru fauna României: *Alaptus pallidornis* (Forster, 1856); *Anagrus (A.) breviphragma* (Soyka, 1955); *Anagrus (A.) similis* (Soyka, 1955); *Anaphes (A.) aries* (Debauche, 1948); *Anaphes (P.) leptoceras* (Debauche, 1948); *Erythmelus (E.) lygivorus* (Viggiani & Jesu, 1985); *Erythmelus (P.) rex* (Girault, 1911); *Erythmelus (E.) soykai* (Donev, 1998); *Ooctonus hemipterus* (Haliday, 1833); *Ooctonus isotomus* (Mathot, 1969); *Ooctonus notatus* (Walker, 1846). Subgenul *Parallelaptera* (Enock, 1909), al genului *Erythmelus* (Enock, 1909) este citat pentru prima dată în România.

**Cuvinte cheie:** *Mymaridae*, fauna, taxonomie, Romania.

### Introduction

In the past, studies of the Family Mymaridae and other chalcids from Romania, were made by: Andriescu (1993); Radu & Boțoc (1958, 1960); Botoc (1962, 1963, 1964, 1965, 1975) and Dimitriu (2001). In the present day, in Romanian fauna are cited a total of 46 valid species of mymarids. This paper is the result of the fauna investigation realized in some areas of the North-East of Romania (Piatra Neamț and Iași districts). In this article we complete the list of mymarid wasps with 11 new species to the Romanian fauna. These results are a part of my work for my diploma of graduation.

### Material and Methods

All species have been collected with an entomological sweep-net in grass – land vegetation, between 2005 and 2006, from some areas of the North-East of Romania.

A part of the material was collected at the North of Hamzoaia (1000 m altitude) close to the Ceahlău Reservation (near “Poiana Maicilor”), in an area predominated by graminee (Fam. *Gramineae*) and other non-woody species of plants: *Alchemilla* sp., *Bellis perennis* L., *Campanula* sp., *Carduus* sp., *Centaurea cyanus* L., *Centaurea* sp., *Cichorium intybus* L., *Cicuta virosa* L., *Dactylis glomerata* L., *Daucus carota* L., *Dryopteris* sp., *Equisetum* sp., *Festuca* sp., *Filipendula vulgaris* Moench., *Fragaria vesca* L., *Galium verum* L., *Geranium* sp., *Hypericum maculatum* Cr., *Poa* sp., *Juncus* sp., *Malva* sp., *Matricaria* sp., *Medicago* sp., *Mentha longifolia* (L.) Nath., *Opopanax chironium* (L.) Koch, *Petasites* sp., *Plantago* sp., *Ranunculus* sp., *Salvia glutinosa* L., *Salvia* sp., *Telekia speciosa* Schreb., *Trifolium* sp., in association with some woody plants like: *Abies alba* L., *Alnus incana* L., *Alnus viridis* (Chaix.) DC., *Betula pendula* Roth, *Carpinus betulus* L.,

*Corylus avellana* L., *Fagus sylvatica* L., *Sambucus nigra* L., *Sorbus aucuparia* L., *Populus tremula* L., *Salix caprea* L., and *Rosa canina* L.

At the Carlomanu hill, near Piatra Neamț the material was collected in areas predominated by graminee and other non-woody species: *Achillea* sp., *Arctium lappa* L., *Dactylis glomerata* L., *Daucus carota* L., *Eryngium campestre* L., *Lamium* sp., *Salvia* sp., *Urtica dioica* L., in association with some woody plants *Carpinus betulus* L., *Crataegus monogyna* Jacq., *Fagus sylvatica* L., *Pinus sylvestris* L. and *Rosa canina* L.

At the Botanical Garden "Anastasiu Fătu" (Iași district) the material was collected in areas predominated by graminee and other non-woody and woody like species: *Alchemilla millefolium* L., *Capsella bursa - pastoris* L., *Cichorium intybus* L., *Conium maculatum* L., *Dactylis glomerata* L., *Festuca* sp., *Geum urbanum* L., *Juniperus communis* L., *Melampyrum* sp., *Phragmites australis* (Cov.) Trim. ex Steud., *Ranunculus acris* L., *Tanacetum vulgare* L., *Trifolium pretense* L. and *Urtica dioica* L.

In some cases the vegetal material, collected in the sweep net, was examined with a stereomicroscope (a time consuming method), in other cases I use the insect pooter (aspirator) to collect the insects from the sweep net, in the field (a less time consuming method).

The specimens were mounted in Faure's medium, or pointed on cardboards (dry mounted) and examined with the stereomicroscope or the optical microscope. The examination of all the vegetal material (in alcohol - 70<sup>0</sup>), with the stereomicroscope, collected in the sweep net is a better method, compared with the insect pooter method (aspirator), because the smaller specimens (< 1 mm) are not escaping, in case we decide to collect all the vegetal material. The drawings were made with the camera lucida.

**Abbreviations used:** F1-F8 = funicular articles; L/W = length/wide ratio of forewing; T3 = the length of hindtibia.

## Results and Discussion

### Subfamily Alaptinae

Tribe Alaptini

Genus *Alaptus* Westwood, 1839

**1) *Alaptus pallidornis*** (Förster, 1856) = *A. pallidicornis* (Förster, 1856)

**Material examined:** 1♀ (Leg. Pricop E.), on 2.06.2006 from the Botanical Garden (Iași district)

**Hosts:** Jassidae and Coccidae (Schauff, 1984). Psocoptera (Mathot, 1961, 1969). *Oulema melanopus* L. (Col., Chrysomelidae); *Coccus hesperidum* L. (Hem., Coccidae); *Chionaspis euonymi* Comst. (Hem., Diaspididae); *Caecilius* sp., *Caecilius flavidus* Steph., *Caecilius fuscopterus* Latreille (Psocopt., Caecillidae); *Ectopsocus* sp., *Ectopsocus briggsi* McLachlan (Psocopt., Ectopsocidae); *Lachesilla pedicularia* L. (Psocopt., Lachesillidae); *Graphopsocus* sp., *Stenopsocus* sp., *Stenopsocus immaculatus* Stephens, *Stenopsocus stigmaticus* Imhoff & Labram (Psocopt., Stenopsocidae) (New, 1969; Triapitsyn, 2002).

**Geographical distribution:** Palearctic - Austria, Belgium, Bulgaria, Denmark, France, Germany, Italy, Netherlands, Russia, Sweden, United Kingdom, Egypt (Soyka, 1937; Viggiani, 1988, 2005; Triapitsyn, 2002).

**Taxonomical notes:** abdomen sessile (genus characteristic); very small specimens < 0.8 mm; F2 of ♀ is 4.0 times longer than wide; disc of forewing in ♀ and ♂ without a row of medial hairs (Fig. 1a, b); body light yellowish, chocolate-brown; head light brown; the ovipositor at least about half from the total length of abdomen; antenna light-yellowish (Soyka, 1937; Debauche, 1948; Hincks, 1959)

**Observations:** F2 of the female is 4.16 times longer than wide (Fig. 1c); club with 2 longitudinal sensillae (Fig. 1c, 7a)

Tribe Anagrini

Genus *Anagrus* Haliday, 1833

Subgenus *Anagrus*

**2) *Anagrus (A.) breviphragma* (Soyka, 1955)**

**Material examined:** 3♀ and 1♂ (Leg. Pricop E.): 1♀ collected on 16.09.2006 from the Pietricica mountain (Piatra Neamț district); 2♀ and 1♂ collected on 2.7.2006 from the Botanical Garden (Iași district).

**Hosts:** *Cicadella viridis* L. (Hem. Cicadellidae), (Chiappini, 1989, 2001, 2002; Moratorio & Chiappini, 1995); *Dalbulus maidis* De Long (Hem., Cicadellidae); *Conomelus anceps* Germar, *Delphacodes kuscheli* Fennah, *Peregrinus maidis* Ashmead, *Dicranotropis hamata* Boheman, *Muellerianella fairmairei* Perris (Hem., Delphacidae); *Orthotylus virescens* Douglas & Scott (Hem., Miridae), *Tettigella viridis* L. (Hem., Cicadellidae), (Moratorio & Chiappini, 1995; Chiappini *et. al.*, 1999; Oliveira & Lopes, 2000; Triapitsyn, 2004).

**Geographical distribution:** Argentina, Austria, Belgium, Brazil, Bulgaria, Colombia, France, Germany, Greece, Guadeloupe, Guyana, Hungary, Italy, Japan, Kirgizia, Peoples' Republic of China, Russia, Sweden, United Kingdom (Donev, 1998; Soyka, 1956; Triapitsyn, 2004).

**Taxonomical notes:** abdomen sessile (genus characteristic (Fig. 2c)); stemmaticum present (subgenus characteristic (Fig. 2c)); club with 5 sensory ridges (characteristic for the “*incarnatus*” group (Fig. 7b)), the club of “*atomus*” group is with 3 sensory ridges; F2 the longest funicle segment (Fig. 2e); ovipositor/foretibia ratio = 2.7-3.0; disc of forewing with a hairless area (Fig. 2a); ovipositor projecting from gaster; the ratio of forewing (L/W) is 9-10.5; color yellowish (Chiappini, 1989).

**Observations:** ovipositor/foretibia ratio = 3; the ratio of forewing (L/W) is 9.

**3) *Anagrus (A.) similis* (Soyka 1955)**

**Material examined:** 2♀ (Leg. Pricop E.), on 10.06.2006 from the Botanical Garden (Iași district).

**Hosts:** *Dicranotropis hamata* Boheman (Hem., Delphacidae) (Walker, 1979).

**Geographical distribution:** West Palearctic – Bulgaria, Germany, Greece, Spain, United Kingdom (Donev, 1998; Baquero, & Jordana, 1999; Soyka, 1956; Chiappini, 1989; Vidal, 2001; Walker, 1979).

**Taxonomical notes:** club with 5 sensory ridges (“*incarnatus*” group); ovipositor/foretibia ratio = 2.1; F3 with sensory ridges (Fig. 2f); ovipositor slightly projecting from gaster; there are 4 parallel setae beside the placoid sensillae of forewing (Fig. 2d); the ratio of forewing (L/W) is 9, forewing without a hairless area (Fig. 2b); body yellow (Chiappini, 1989; Baquero & Jordana, 1999).

**Observations:** ovipositor/foretibia ratio = 2.16-2.24.

**Subfamily Mymarinae**

Tribe Anaphini

Genus *Anaphes* Haliday 1833

Subgenus *Anaphes*

**4) *Anaphes (A.) aries* (Debauche 1948)**

**Material examined:** 2♀ (Leg. Pricop E.), on 26.08.2005 from the Hamzoaia (Piatra Neamț district).

**Hosts:** Unknown.

**Geographical distribution:** West Palearctic – Belgium, Germany, Sweden, United Kingdom (Debauche, 1948; Bouček & Graham, 1978; Trjapitzin, 1978; Vidal, 2001).

**Taxonomical notes:** abdomen subsessile, forewing with a line of setae extending from under venation across the membrane to the hindmargin (characteristics of the genus (Fig. 3b)); club nonsegmented (characteristic for the subgenus *Anaphes* = “*fuscipennis*” group), forewing is broad  $L/W < 6$  (Fig. 3a), antennal club notably longer than total length of  $F5 + F6$ ,  $F2$  to  $F6$  each with 2 sensory ridges (Fig. 3c); marginal fimbria longer than 0.50 width of wing; ovipositor does not protrude (Debauche, 1948).

**Observations:** club with 6 sensory ridges; the ratio of forewing ( $L/W$ ) = 5; the length of  $F5+F6$  = 86% from the length of the club; ovipositor/hindtibia ratio ( $T3$ ) = 0.94.

#### Subgenus *Patasson*

##### 5) *Anaphes* (*P.*) *leptoceras* (Debauche 1948)

**Material examined:** 1♀ (Leg. Pricop E.), on 25.7.2006 from the Hamzoaia (Piatra Neamț district).

**Hosts:** *Lixus algirus* L. (Col. Curculionidae), *Ilybius fuliginosus* Fabricius (Col. Dytiscidae) (Isart, 1970; Liotta, 1965).

**Geographical distribution:** West Palearctic – Belgium, Germany, Italy, Norway, Spain, United Kingdom (Debauche, 1948; Graham, 1982; Huber, 1992; Viggiani, 1994).

**Taxonomical notes:** antennal club with two segments (characteristic for the subgenus *Patasson* = “*crassicornis*” group);  $F2$  to  $F6$  segments long -  $F2$  the longest,  $F2$  to  $F6$  each with 2 sensory ridges (Fig. 3d); forewing broaden at the apex (Debauche, 1948).

**Observations:** the proximal segment of the club with 2 sensory ridges and the distal segment with 4 sensory ridges (Fig. 3d); ovipositor/hindtibia ratio = 1.6; the ratio of forewing ( $L/W$ ) = 6.67.

#### Genus *Erythmelus*

##### Subgenus *Erythmelus*

##### 6) *Erythmelus* (*E.*) *lygivorus* (Viggiani & Jesu 1985)

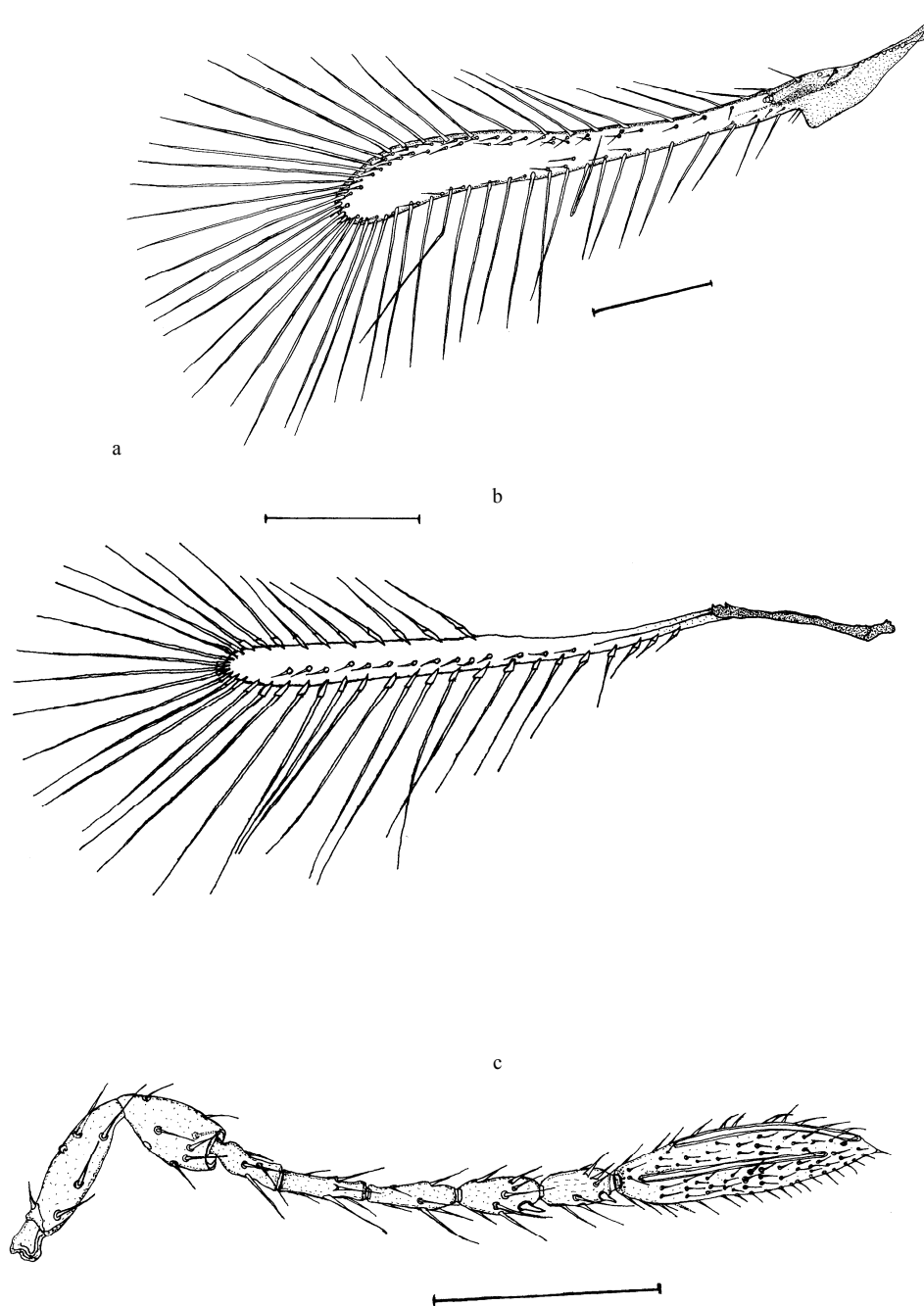
**Material examined:** 1♀ collected (Leg. Popovici O.), on 26.06.2005 from the Ciric region (Iași district).

**Hosts:** *Lygus pratensis* L., *L. rugulipennis* Poppius and *L. sp.* (Hem. Miridae) (Viggiani & Jesu, 1985).

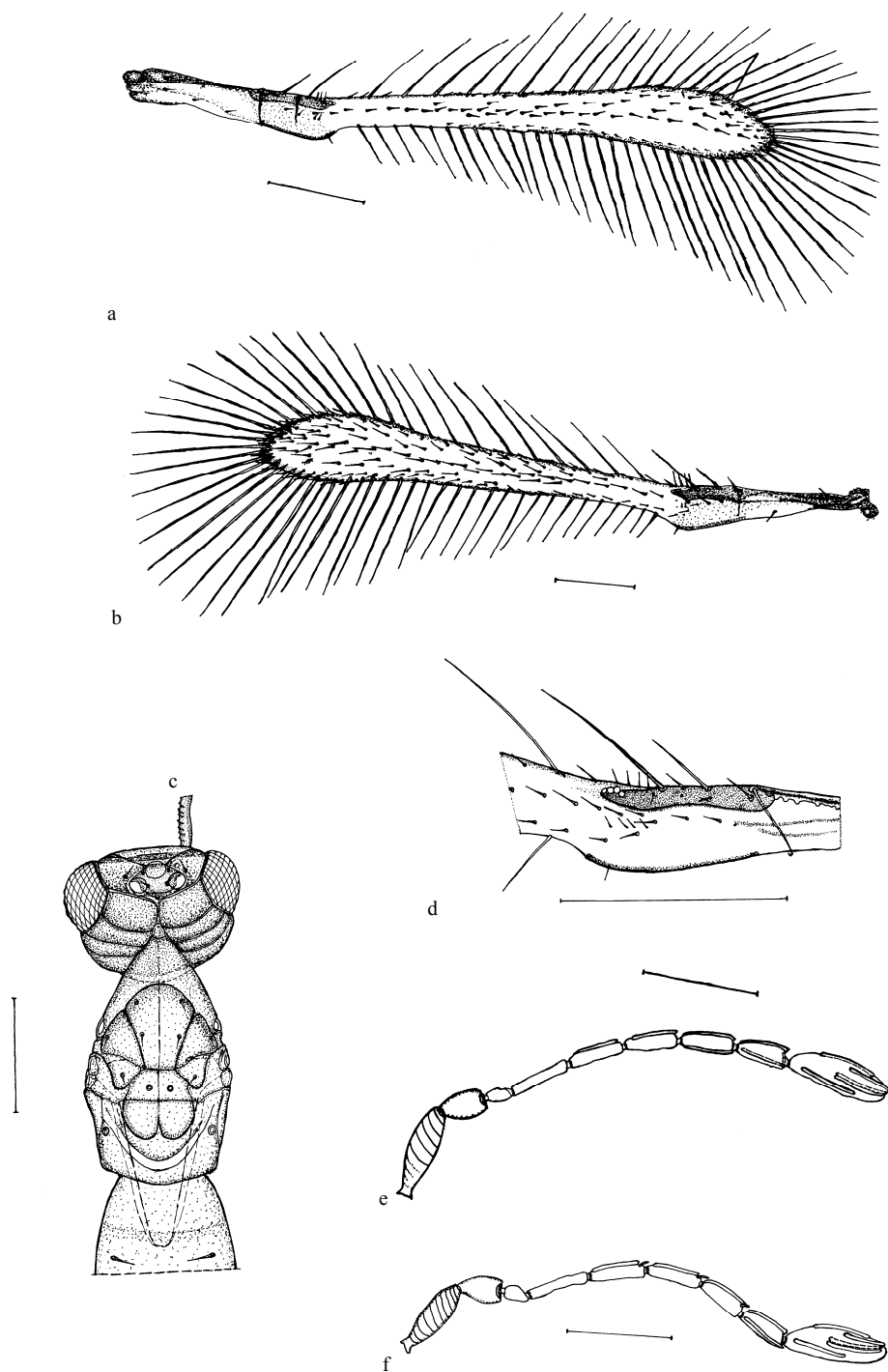
**Geographical distribution:** West Palearctic – France, Hungary, Italy, Spain (Triapitsyn, 2003).

**Taxonomical notes:** abdomen subsessile (subpetiolate), mandibles reduced, hypopygium is present and developed (genus characteristics); ovipositor long (“*helopeltidis*” group (Fig. 4d)); mesoscutum with a lighter, narrow, transverse, median band (Fig. 4g); each funicle segment cylindrical – longer than wide; from  $F1$  to  $F6$ , all funicle segments progressively wider (Fig. 4e),  $F6$  with 2 longitudinal sensillae (Fig. 4f), club with 5 longitudinal sensilla (Fig. 7d), very long ovipositor, first gastral tergum brown basally and yellow or light brown distally (Fig. 4d); color dark brown (Triapitsyn, 2003)

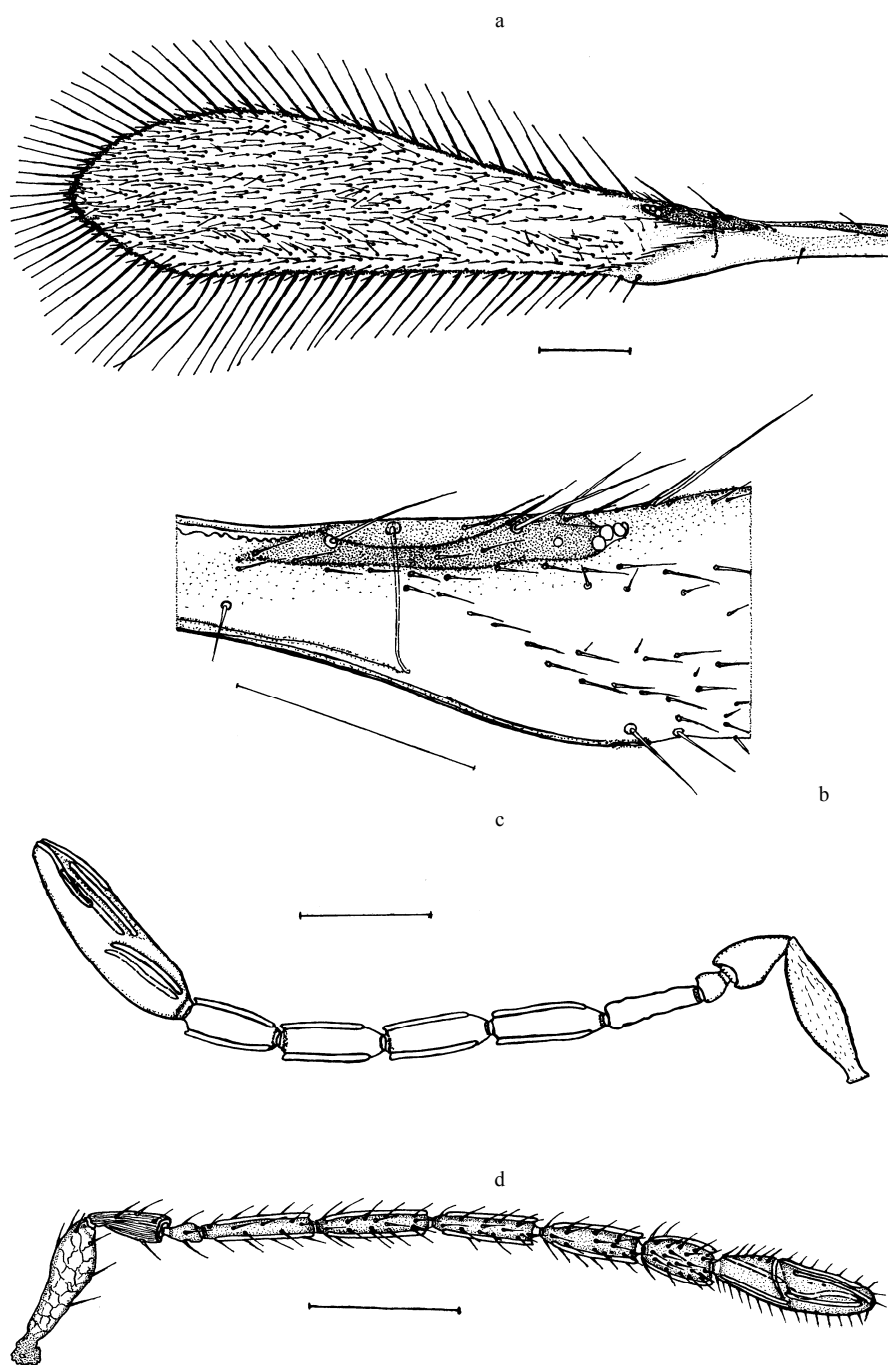
**Observations:** ovipositor/hindtibia ratio ( $T3$ ) = 2.2.



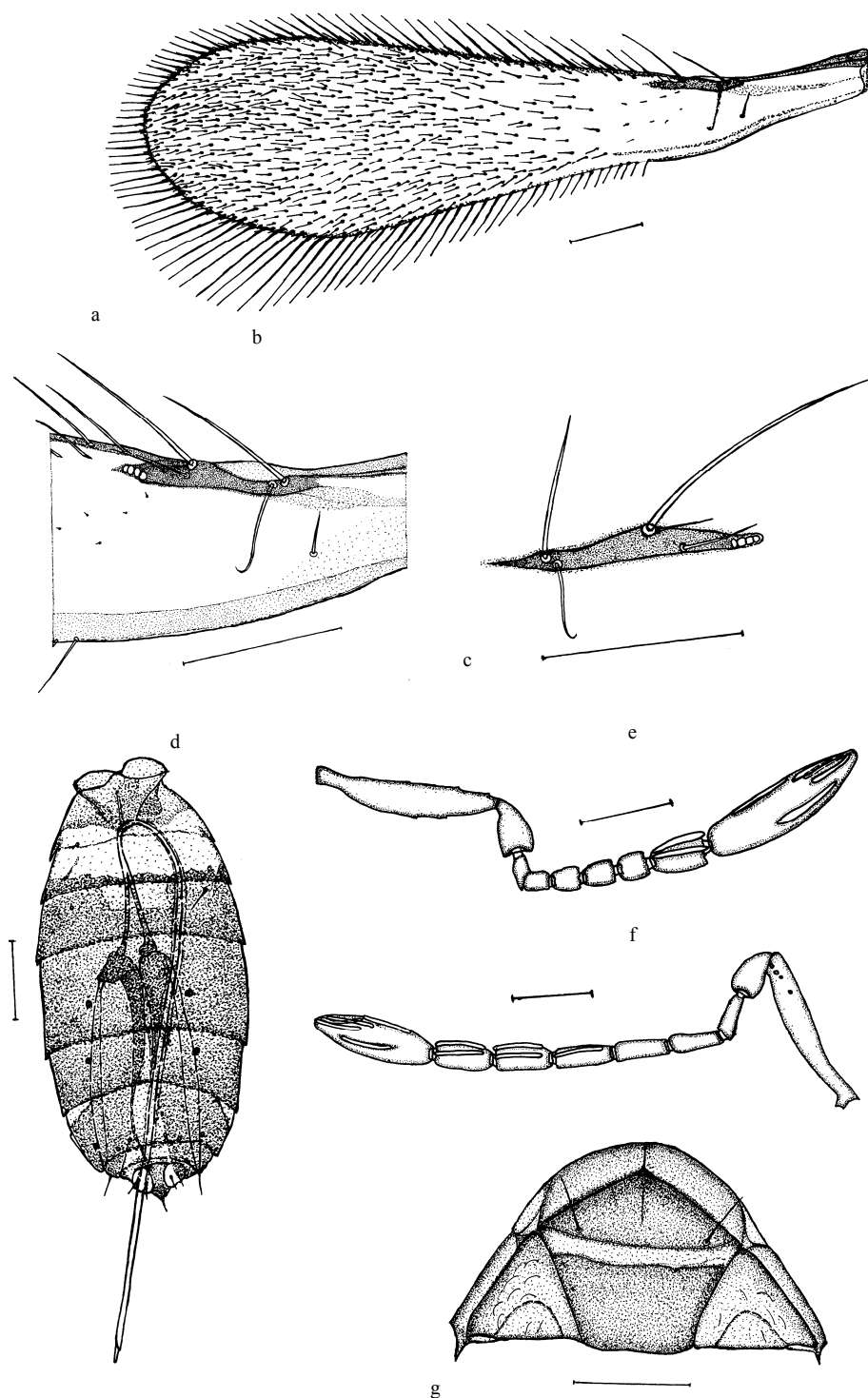
**Figure 1.** *Alaptus pallidornis* Förster: a – forewing, b – hindwing, c – female antenna; scale = 0.1 mm (original).



**Figure 2.** *Anagrus (A.) breviphragma* Soyka: a – forewing; b – forewing; c – head, thorax and the first tergite (dorsal view); d – wing vein; e – female antenna; *Anagrus (A.) similis* Soyka: f – female antenna; scale = 0.1 mm (original).

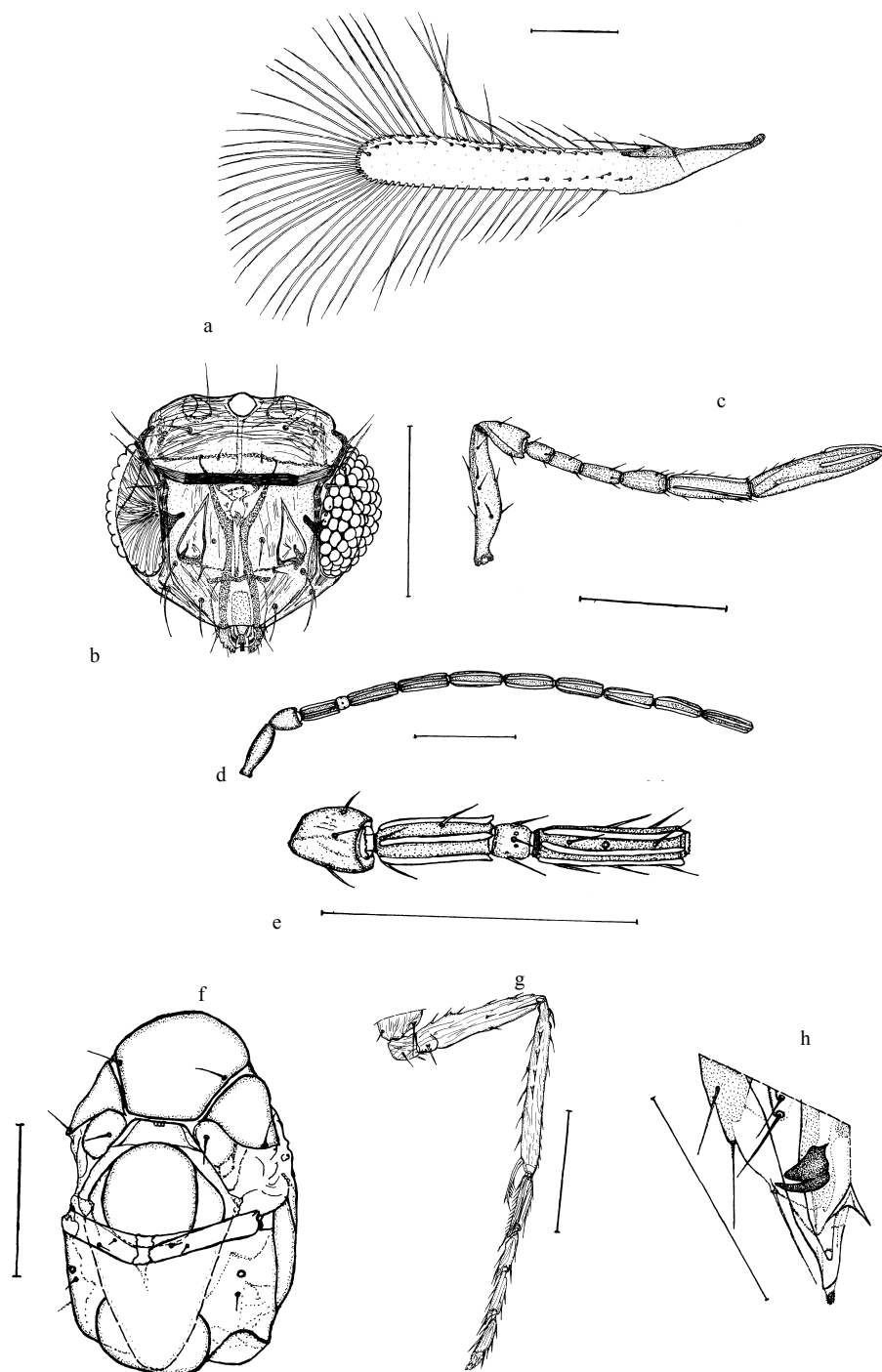


**Figure 3.** *Anaphes (A.) aries* Debauche: a – forewing, b – wing vein, c – female antenna; *Anaphes (P.) leptoceras* Debauche: d – female antenna; scale = 0.1 mm (original).

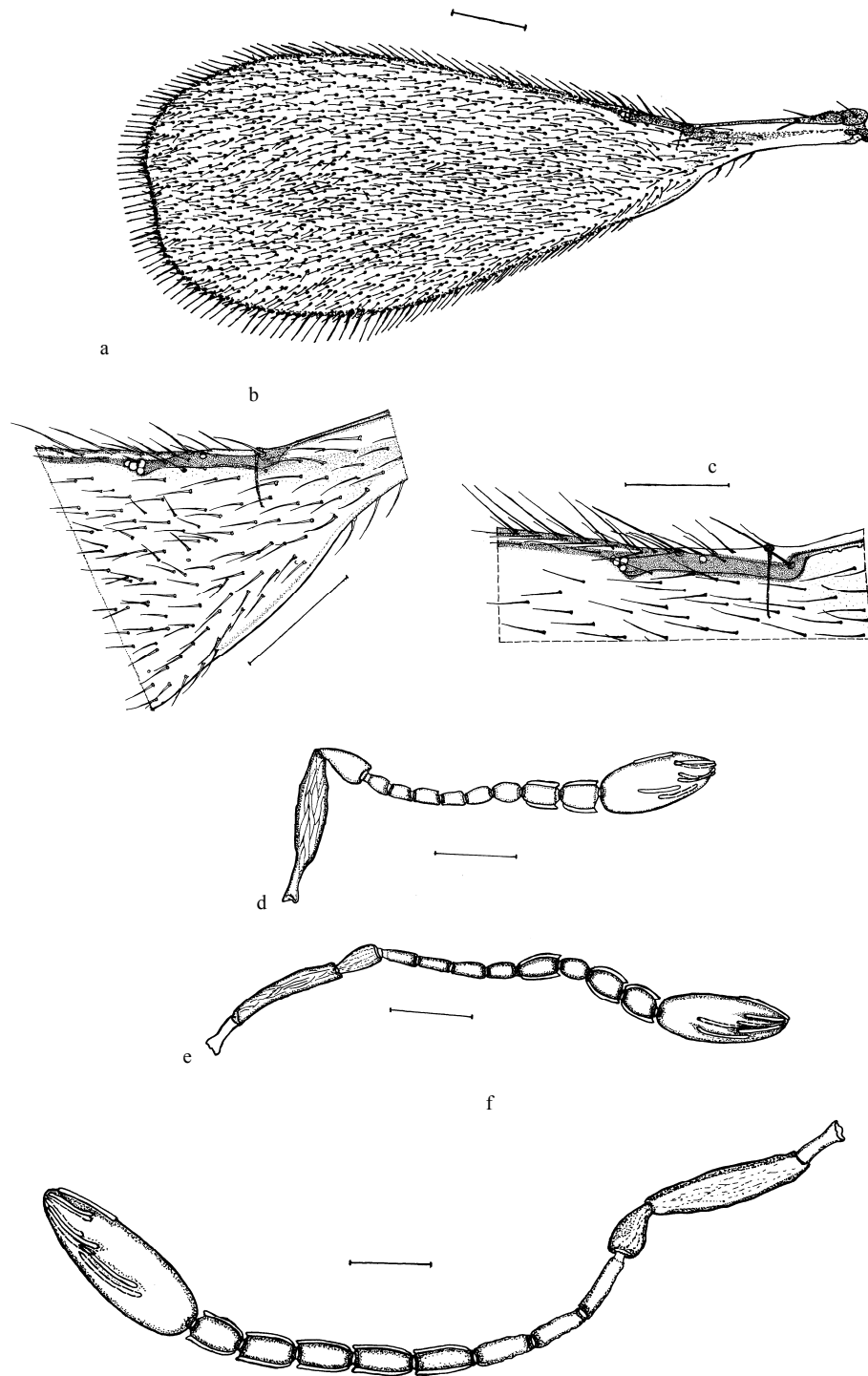


**Figure 4.** *Erythmelus (E.) soykai* Donev: a – forewing, b – wing vein, f – female antenna; *Erythmelus (E.) lygivorius* Viggiani & Jesu: c – wing vein, d – female abdomen, e – female antenna, g – the pronotum and the mesoscutum; scale = 0.1 mm (original).

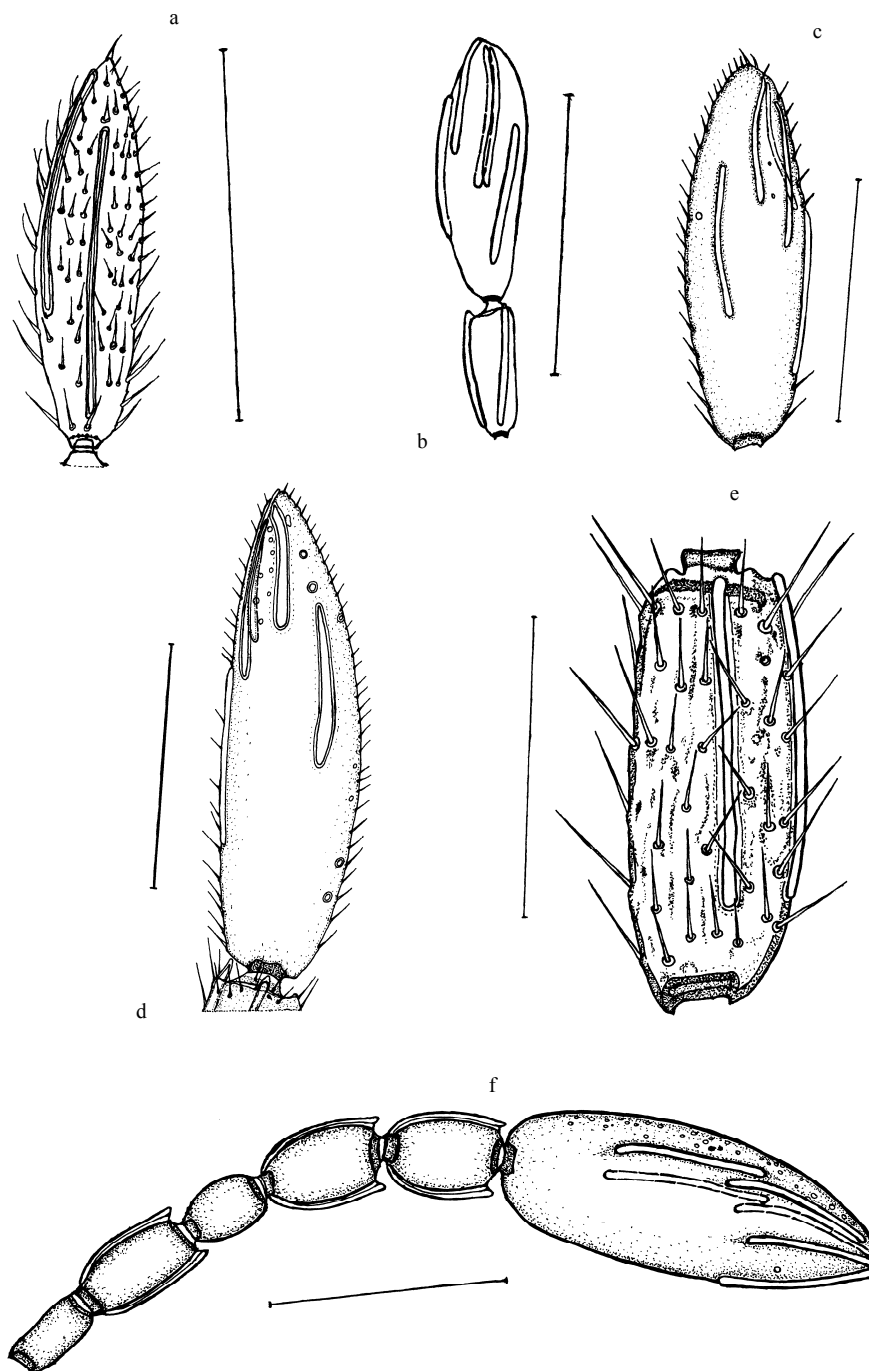




**Figure 5.** *Erythmelus (P.) rex* Girault: a – forewing of female, b – head, c – female antenna, d – male antenna, e – pedicel and F1 to F3 of male, f – thorax (dorso lateral view), g – foreleg of female with scale = 0.1 mm; a part of male genitalia with a digitus vollselaris, with the scale = 0.05 mm (original).



**Figure 6.** *Ooctonus notatus* Walker: a – forewing of female, b – wing vein, e – female antenna; *Ooctonus isotomus* Mathot: c – wing vein, f – female antenna; *Ooctonus hemipterus* Haliday: d – female antenna; scale = 0.1 mm (original).



**Figure 7.** Antennal club of: a – *Alaptus pallidornis* Förster, b – F6 and the club of *Anagrus* (*A.*) *breviphragma* Soyka, scale = 0.1 mm; c – *Erythmelus* (*E.*) *soykai* Donev, d – *Erythmelus* (*E.*) *lygivorus* Viggiani & Jesu, with scale = 0.1 mm; e – F5 of *Erythmelus* (*E.*) *lygivorus* Viggiani & Jesu, scale = 0.05 mm; f – F4 to F8 and the club of *Ooctonus notatus* Walker, with scale = 0.1 mm (original).

**7) *Erythmelus (E.) soykai* (Donev 1998)**

**Material examined:** 2♀ (Leg. Pricop E.), on 14.05.2006 from the Botanical Garden (Iași district).

**Hosts:** Unknown.

**Geographical distribution:** West Palearctic – Austria, Hungary, Kirgizia (Donev, 1998; Triapitsyn, 2003).

**Taxonomical notes:** F1 about as long as the pedicel (“*agilis*” group (Fig. 4f)); the forewing is broad; F5 with 2 longitudinal sensillae (Fig. 4f, 7e); club with 5 longitudinal sensillae (Fig. 7c); ovipositor is short (Triapitsyn, 2003).

**Observations:** the ratio of forewing (L/W) is 3.7 (Fig. 4a).

Subgenus *Parallelaptera*

**8) *Erythmelus (P.) rex* (Girault 1911)**

**Material examined:** 1♀ and 1♂ (Leg. Pricop E.), on 16.09.2006 from the Carlomanu hill (Piatra Neamt district).

**Hosts:** *Adelphocoris* sp., *Lygus hesperus* Knight (Hem., Miridae); *Circulifer* sp., *Circulifer tenellus* Baker, *Eutettix* sp., *Eutettix tenellus* Baker (Hem., Cicadellidae); *Corythaica venusta* Cha., *Dictyla nassata* Put., *Derephysia foliacea* Fall., *Neotalitrus tenellus* Bak. (Hem., Tingidae) (Triapitsyn, 2003).

**Geographical distribution:** Austria, Canada, France, Greece, Iran, Kirgizia, Mexico, Russia, Spain, Turkmenistan, United Kingdom, United States of America (Girault, 1911; Triapitsyn, 2003).

**Taxonomical notes:** mandibles reduced (Fig. 5b), forewing ratio (L/W) = 7.0-9.0; mesosoma usually shorter than metasoma; F5 of ♀ (Fig. 5c) is about 0.8-0.9 X combined length of F3 and F4 (Triapitsyn, 2003).

**Observations:** the ratio of forewing (L/W) is 8.3 (Fig. 5a) in case of the female, and 7.3 in case of the male; male very small < 1 mm and the hairs of the antenna are not in order (Fig. 5d, e), digitus volsellaris bidentated (Fig. 5h); the metanotum with 4 hairs (Fig. 5f); foretibia with 4 sensillae (Fig. 5g).

Tribe Ooctonini

Genus *Ooctonus* Haliday 1833

**9) *Ooctonus hemipterus* (Haliday 1833) = *O. soykai* (Hincks, 1952)**

**Material examined:** 1♀ (Leg. Pricop E.), on 19.08.2006 from the Hamzoaia (Piatra Neamt district).

**Hosts:** Unknown.

**Geographical distribution:** West Palearctic – Belgium, Croatia, Czech Republic, Germany, Ireland, Italy, Netherlands, Slovakia, Sweden, United Kingdom (Haliday, 1833; Debauche, 1948; Hincks, 1952; Viggiani & Jesu, 1988).

**Taxonomical notes:** abdomen petiolated (genus characteristic); total length of F1, F2 and F3 shorter than the club, F7 and F8 each with 2 longitudinal sensillae (Fig. 6d); thorax strongly sculptured, wings reduced (Hincks, 1952).

**Observations:** club with 7 longitudinal sensillae (Fig. 6d); the ratio of forewing (L/W) is 3.79.

**10) *Ooctonus isotomus* (Mathot 1969)**

**Material examined:** 1♀ (Leg. Pricop E.), on 26.08.2005 from the Hamzoaia (Piatra Neamt district).

**Hosts:** Unknown.

**Geographical distribution:** West Palearctic – Belgium, Sweden (Mathot, 1969).

**Taxonomical notes:** sensillae present on F4 to F8 (Fig. 6f); forewing with very blunt apex, large specimens (Mathot, 1969).

**Observations:** club with 8 longitudinal sensillae (Fig. 6f); the ratio of forewing (L/W) is 2.86; wing vein is thick (Fig. 6c).

**11) *Ooctonus notatus*** (Walker 1846) = *O. heterotomus* (Förster, 1847)

**Material examined:** 1♀ and 2♂ (Leg. Pricop E.), on 20.08.2006 from the Hamzoaia (Piatra Neamț district).

**Hosts:** *Acocephalus* sp. (Hem. Cicadellidae) (Bakkendorf, 1934).

**Geographical distribution:** Austria, Belgium, Czech Republic, Denmark, Germany, Italy, Norway, Sweden, United Kingdom (Bakkendorf, 1934; Walker, 1846; Förster, 1847; Viggiani & Jesu, 1988).

**Taxonomical notes:** F5, F7 and F8 each with 2 longitudinal sensillae (Fig. 6e, 7f); forewing with very blunt apex (Fig. 6a); thorax weakly sculptured (Hincks, 1952).

**Observations:** club with 6 longitudinal sensillae (Fig. 6e, 7f); the ratio of forewing (L/W) is 2.80; ovipositor/hindtibia ratio (T3) = 1.15; wing vein is thin (Fig. 6b).

### Conclusions

The biodiversity of the mymarids is relative poor in comparison with other chalcids like the pteromalids, encyrtids and the eulophids, but I presume that in the Romanian fauna will be found, in the future, more than a total of 100 species. Predictions of growth in human populations and food supply suggest that there will be a need to substantially increase food production in the near future, one possible approach to meeting this demand, at least in part, is the control of pests and diseases, which currently causes losses in available crop production. Strategies for controlling pests and diseases have tended to focus on short-term, single-technology interventions, particularly chemical pesticides, but in the future we can use some chalcids, like the mymarids which are exclusively egg parasitoids, to control the population growth of some pest-species in the European Region.

### Acknowledgements

I thank Prof. Dr. Ionel Andriescu, Prof. Dr. Ioan Moglan, Dr. Elvira Gille, Dr. Doina Danila, Dr. Mihai Porumb, Dr. Ovidiu Popovici, Dr. Irinel Popescu and Lucian Fusu for the references, advices, the laboratory conditions and the scientific support.

### References

- Andriescu, I., 1993. Contribuții la studiul calcidoidelor (*Hym. Chalcidoidea*) din Rezervația Biosferei Delta Dunării. *Anal. Științ. Instit. Delta Dunării*: 49-57.
- Bakkendorf, O., 1934. Biological investigations on some Danish hymenopterous egg-parasites, especially in homopterous and heteropterous eggs, with taxonomic remarks and descriptions of new species. *Entomologiske Meddelelser* **19**:34.
- Baquero, E., Jordana, R., 1999. Species of *Anagrus* Haliday, 1833 (Hymenoptera, Chalcidoidea, Mymaridae) in Navarra (Spain). *Miscel-lània Zoològica* **22(2)**:39-50.
- Boțoc, M., 1962. Noi contribuții la studiul calcidoidelor din R.P.R. (VII). *Studia Univ. Babeș-Boyai, s. Biol.*, **VII(1)**: 107-115.
- Boțoc, M., 1963. Noi contribuții la studiul calcidoidelor din R.P.R. (VIII). *Studia Univ. Babeș-Boyai, s. Biol.*, **VIII(1)**: 95-109.
- Boțoc, M., 1964. Noi contribuții la studiul calcidoidelor din R.P.R. *Studia Univ. Babeș-Boyai, s. Biol.*, **IX(1)**: 79-85.
- Boțoc, M., 1965. *Studiul sistematic și ecologic al calcidoidelor din Transilvania*. PhD dissertation, Universitatea Babeș-Boyai Cluj-Napoca.
- Boțoc, M., 1975. *Fauna. Grupul de cercetări complexe „Porțile de Fier”*. Editura Academiei. R.S.R., p. 179-180.

- Chiappini E., 1989. Review of the European species of the genus *Anagrus* Haliday (Hymenoptera Chalcidoidea). *Bollettino di Zoologia Agraria e Bachicoltura, Milano* **(2)**: 85-119.
- Debauche, H. R., 1948. Étude sur les Mymarommidae et les Mymaridae de la Belgique (Hym., Chalcidoidea). *Mémoires du Musée Royal d'Histoire Naturelle de Belgique*, **108**:119.
- Dimitriu, D. I., 2001. Speciiile genului *Gonatocerus* Nees (Hym. Chalc. Mymaridae) noi pentru Fauna României. *S.J. aniv. 30 ani Form. Rez. Codrii*: 25.
- Donev, A. D., 1998. Distributional data about the species of genus *Anagrus* Haliday (Hymenoptera, Mymaridae) in the Balkan peninsula with description of a new species. *Acta Zoologica Bulgarica* **50(1)**:71-78.
- Enock, F., 1909. New genera of British Mymaridae (Haliday). *Transactions of the Entomological Society of London*, **1909**: 449-459.
- Förster, A., 1847. Ueber die Familie der Mymariden. *Linnaea Entomologica*, **2**: 201.
- Girault, A. A., 1911. A new mymarid genus and species from North America allied with *Anthemus* Howard. *Proceedings of the Entomological Society of Washington*, **13**: 185-187.
- Haliday, A. H., 1833. An essay on the classification of the parasitic Hymenoptera, etc. (Continued) *Entomological Magazine* **1(4)**: 344.
- Hincks, W. D., 1952. The British species of the genus *Ooctonus* Haliday, with a note on some recent work on the fairy flies (Hym., Mymaridae). *Transactions of the Society for British Entomology* **11(7)**:160.
- Hincks, D. W., 1959. The British species of the genus *Alaptus* Haliday in Walker (Hym. Mymaridae). *Trans. Soc. Brit. Ent.* **13(8)**: 137-148.
- Huber, J. T., 1992. The subgenera, species groups and synonyms of *Anaphes* (Hymenoptera: Mymaridae) with a review of the described Nearctic species of the *fuscipennis* group of *Anaphes* s.s. and the described species of *Anaphes* (*Yungaburra*). *Proceedings of the Entomological Society of Ontario* 123 pp. 23-110.
- Mathot, G., 1969. Contribution à la connaissances des Mymaridae d'Europe et description d'espèce nouvelles (Hymenoptera: Chalcidoidea). *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique* **45(7)**: 13.
- Noyes, J. S., 2003. Universal Chalcidoidea Database. *World Wide Web electronic publication*. <http://www.nhm.ac.uk/entomology/chalcidoidea/index.html> (accessed 9-OCT-2007).
- Pricop, E., 2007. *Mymaride (Insecta – Hymenoptera – Chalcidoidea, Fam. Mymaridae) identificate, din unele zone ale judetelor Iasi și Neamț în perioada 2005-2006*. Graduation dissertation, Facultatea de Biologie, Universitatea „Al. I. Cuza” Iași.
- Radu, V. V., Boțoc, M., 1958. Calcide și proctotrupide din împrejurimile orașului Cluj. *Com. Acad. Rep. Pop. Rom.*, **VIII(1)**: 61-69.
- Radu, V. V., Boțoc, M., 1960. Noi contribuții la studiul calcidoidelor din jurul Clujului. *Com Acad. Rep. Pop. Rom*, **X(4)**: 321-329.
- Schauff, M., 1984. *The Holarctic Genera of Mymaridae (Hym. Chalc.)*. Publ. Ent. Soc. Washington, DC.
- Soyka, W. 1937. Beiträge zur Klärung der europäischen Arten der Mymariden. Das Genus *Alaptus* Haliday. *Natuurhistorisch Maandblad, Maastricht*, **26**: 74.
- Triapitsyn, S. V., 2002. Species of the genus *Alaptus* Westwood (Hymenoptera, Mymaridae) reared from psocid eggs (Psocoptera) by V. N. Vishnyakova (Gorlova) in Russia and Byelorussia [In Russian]. *Entomologicheskoye Obozrenie* **81(1)**: 215-217.
- Triapitsyn, S. V., 2003. Review of the Mymaridae (Hymenoptera, Chalcidoidea) of Primorskii Krai: genus *Erythmelus* Enock, with taxonomic notes on some extralimital species. *Far Eastern Entomologist* **126**: 29.
- Triapitsyn, S. V., Berezovskiy, V. V., 2004. Review of the genus *Anagrus* Haliday, 1833 (Hymenoptera: Mymaridae) in Russia, with notes on some extralimital species. *Far Eastern Entomologist* **139**: 15.
- Vidal, S., 2001. Chalcidoidea. In Dathe, H. H.; Taeger, A., Blank, S. M. (edits.): Entomofauna Germanica. Band 4. Verzeichnis der Hautflügler Deutschlands. *Entomologische Nachrichten und Berichte Beiheft* **7**: 60.
- Viggiani, G., 1988. A preliminary classification of the Mymaridae (Hymenoptera: Chalcidoidea) based on the external male genitalic characters. *Bollettino del Laboratorio di Entomologia Agraria 'Filippo Silvestri', Portici* **45**:144.
- Walker, F., 1846. Descriptions of the Mymaridae. (And Errata and Addenda: viii.) *Annals and Magazine of Natural History* **18**: 50.