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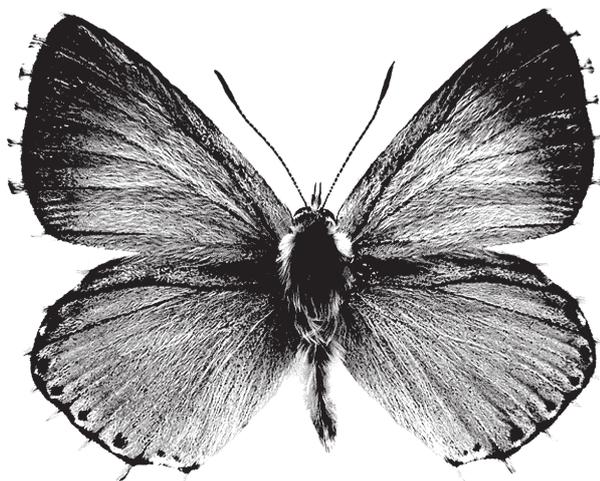
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New records of Encyrtidae (Hymenoptera, Chalcidodiea) with the description of three new species from Georgia

Новые находки Encyrtidae (Hymenoptera, Chalcidodiea) с описанием трех новых видов из Грузии

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Ключевые слова. Hymenoptera, Encyrtidae, новые находки, *Aschitus*, *Ericydnus*, новые виды, Грузия.

Abstract. The new list of encyrtid species belonging to seven genera from Georgia is given with the new distributional and host records. Seven new records are given from Georgia, one genus and three species, new records for the Caucasus among them. Three new species: *Aschitus imeretinus* sp. n., *Ericydnus nino* sp. n. and *E. luka* sp. n. are also described and illustrated.

Резюме. The new list of encyrtid species belonging to seven genera is given for Georgia. The list includes new distributional and host records. Seven new records are given from Georgia, one genus and three species, among them are new records for the Caucasus. Three new species, *Aschitus imeretinus* sp. n., *Ericydnus nino* sp. n. and *E. luka* sp. n., are also described and illustrated.

Introduction

It is well-known that some regions of the world are more biologically diverse than others. Most groups of organisms have far more species in the tropics than they do in the temperate zones or in higher latitudes. As a result, much of the focus on the extinction crisis has been associated with the loss of tropical rainforests. Because the numbers are so daunting, many conservationists have focused on identifying those places with the highest amount of diversity, "biodiversity hotspots" as Norman Myers [1988] called them. Among the world's 25 hotspots one is the Caucasus [Myers et al., 2000], where the key place occupies the territory of Georgia. It is very important to study biodiversity of parasitic wasps. /Povtor nizhe/. Among them, one of the most important groups in biological control of plant harmful insects is the family Encyrtidae. Along with the family Aphelinidae it is successfully used against many pests, especially scale insects [Noyes, 1985; Yasnosh and Japoshvili, 1998]. Estimates suggest that there are at least 500 000 species worldwide with only 22 000 species so far described and catalogued [Noyes, 2000].

These are important reasons to study the biodiversity of parasitic wasps of the Caucasus. Many publications are devoted to this problem [Trjapitzin, 1968, 1989; Yasnosh 1972; Herthetvzian, 1986; Japoshvili and Yasnosh, 1999; Japoshvili, 2000 a,b; 2002; Rzaeva, 2002], but the existing knowledge is still far from being complete.

Material and methods

Material examined was collected by the author during 1994-2005 field work. Descriptions were done for dry specimens and then they were slide mounted if it was necessary.

Descriptions and terminology follow Noyes [2006] and Gibson et al. [1997]. The following abbreviations are used in the text: AOD, diameter of anterior ocellus; AOL, distance between posterior and anterior ocelli; CL, clava length; EL, maximum eye length; FL, funicle length, FV, minimum frontovertex width; FVL, maximum frontovertex length; F1, F2, etc., first funicle segment, second funicle segment, etc.; FWL, maximum length of forewing; GL, maximum gonostylus (= third valvula) length; HH, height of head; HW, maximum head width; MS, malar space (shortest distance from the eye to mouth margin); MSL, median length of mesoscutum; MSW, maximum width of mesoscutum; MT, mid tibia length; MTFT mid tibial first tarsal segment; MTS, mid tibial spur length; MW, mouth width; OCL, occipital ocellar line (distance of posterior ocellus from occipital margin); OL, ovipositor length; OOL, ocular-ocellar line (shortest distance between posterior ocellus and adjacent eye margin); OPL, length of outer plate of ovipositor; OPW, maximum width of outer plate of ovipositor; PL, Pedicel length; POD, diameter of posterior ocellus; POL, posterior ocellar line (= the shortest distance between the posterior ocelli); SL, scape length; SbL, length of submarginal vein; SW, scape width; TA, distance between toruli and anterior ocellus; TE, distance between torulus and eye margin; TM, distance between torulus and mouth margin; TT, distance between toruli; WW, maximum width of forewing.

All material preserved in the collections of the Georgian Institute of Zoology (Tbilisi, Georgia).

Results

List of new records

Genus *Aschitus* Mercet, 1921

Aschitus imeretinus Japoshvili, sp. n.

(Color pl. 3, figs. 1a, b, c, d, e)

Material examined. Holotype female on card labeled "Aschitus imeretinus Japoshvili, 07.VIII.2003, Georgia: Racha-Imereti South-Eastern

Slope, swept on the grass, in the subalpine zone, 1800m". Holotype deposited in GIZ; Paratype: same data as holotype, 1♀ on slide [GIZ].

Description. Female holotype. Length, including ovipositor 1 mm. excluding ovipositor 0.98 mm (Critical Point Dried - CPD) (Fig. 1. a, b).

Body generally dark brown. Head dark brown, FV orange between eyes, above the scrobes joining, but dark brown around ocelli area. Scape and antennal segments dark brown. Thorax with green metallic reflection, abdomen with golden metallic reflection, gonostils orange; Mesoscutum and scutellum with dark blue metallic reflection. All coxae and femora dark brown, 2/3 of hind tibia and apical segment of tarsus dark. Apical 1/3 part of hind tibia, middle and fore tibia, and 1-4 segments of tarsus almost orange. Fore wings infuscated at basal 2/3 (7:10) part, then there is hyaline bend (1:10) and then again infuscated until apical part, but this infuscation is considerably paler than that of at basal part of fore wings (Fig. 1d).

Head shiny with fairly regular, reticulate sculpture of mesh size subequal to an eye facet; ocelli forming an angle of about 90°; Antenna with apex of clava more or less rounded (but from different points of observation it can look like having slight truncation at the apex, which is sensorial part almost white in colour (or also with a narrow, slightly oblique, apical truncation) (Fig. 1e); eye reaching occipital margin; upper temple rounded in facial view; frontovertex not parallel-sided, inner margins of eyes slightly curved, scrobes moderately deep, V-shaped, clearly meeting dorsally.

Thorax without notaular lines; dorsum of thorax quite shiny with sculpture on mesoscutum and scutellum similar to that of frontovertex; sides of propodeum with several short, inconspicuous brown setae; fore wing venation and setation as in Fig. 1d.

Postmarginal almost not developed, marginal and stigmal same length.

Gaster with ovipositor almost not exerted, the exerted part about 0.05X as long as gaster or 0.21x as long as midtibial spur; gonostyles slightly pointed. Length of outer plates of ovipositor 2.2 times as long as its maximum width (Fig. 1. c). Apex of last tergite more or less rounded. Hypopygium reaching about 0.84x along gaster.

Relative measurements. HW 49, FV 16, FVL 26, POL 7.5, AOL 6, OOL 1.5, OCL 2.5, POD 3, AOD 3, EL 29, EW 21.5, MS 17.5, S 22, SBL 38, SW 10.5, FWL 100, WW 44, HWL 75, HWW 20, OL 37, GL 9.3, OPL 23, OPW 10.5.

Male. Unknown.

Diagnosis. The new species is close to *A. madyes*, but differs in the characters given in the Table 1.

Distribution. Georgia.

Host. Unknown.

Genus *Copidosoma* Ratzeburg, 1844

Copidosoma dius (Walker, 1837)

Material examined. 1♀, Georgia, Tbilisi, Turtles lake, Swept on the grass, 30.V.2006, G. Japoshvili.

Distribution. Austria, Czech Republic, Denmark, Estonia, Finland, France, *Georgia, Germany, Hungary, Ireland (North & South), Italy, Netherlands, Slovakia, Spain, Sweden, United Kingdom (excl. Northern Ireland). New record for Caucasus.

Hosts. *Coleophora nutantella*, *C. silenella* (Coleophoridae), *Biselachista serricornis*, *B. utonella*, *Elachista adscitella*, *E. albifrontella*, *E. argentella*, *E. bisulcella*, *E. griseella*, *E. humilis*, *E. klimeschi*, *E. littoricola*, *E. pollinariella*, *E. subnigrella*, *E. utonella* (Elachistidae), *Dichrorampha plumbana* (Tortricidae) (Lepidoptera).

Genus *Ericydnus* Haliday, 1832

Ericydnus apterogenes Mayr, 1876

Material examined. 2♂, Georgia, Ambrolauri, Shaori right bank, swept on the grass, 19.VIII.2005, G. Japoshvili (Card mounted); 3♂ same data, slides; 1♀, Georgia: Kharagauli, Choda, swept on the grass, 7.IX.2005, G. Japoshvili, (card mounted).

Distribution. Austria, Czech Republic, France, *Georgia, Germany, Romania, Slovakia, Sweden, United Kingdom (excl. Northern Ireland). New for Caucasus.

Host. unknown.

Ericydnus luka Japoshvili sp. n.

(Color pl. 3, figs. 2a, b, c)

Material examined. Holotype female on card labeled "Ericydnus luka Japoshvili, Georgia, Mtatsminda (Tskalgamkopi), swept on the grass, 15.VII.1997, G. Japoshvili; Left Antenna of holotype on the slide N907.

Description. Female holotype. Length 1.8 mm (CPD) (Fig. 2 a, b, c).

Body generally dark, at most black with metallic reflection. Mandibles, maxillary and labial palpi light brown. Radicula, antennal, scape pedicel and funicle segments bluish brown with metallic reflection. FV black with blue-violet metallic reflection; Pronotum, Mesoscutum and Scutellum dark brown with silver-golden-violet metallic reflection; Tegulae also dark brown with silver-golden-green metallic reflection. First gastral tergite also brown with golden-silver metallic reflection and extensively pilose. Mesopleuron and all Legs dark brown with golden-silver-green metallic reflection. Forelegs slightly light brown. Fore wings strongly abbreviated reaching middle of first tergite and virtually hyaline.

Head about 1.07 times (30/28) as wide as high and about 3 times as broad as FV. FV 1.2 times as long as wide; OOL 0.5 as long as and OCL almost 1.5 times as long as POD; ocelli forming an triangle of about 100°; Eye about 3.33 times as long as malar space. Antenna with scape about 1.5 times as long as club and 6 times as long as wide, pedicellus as long as wide, Clava as long as F5-F6, Antenna with first funicular segment 1.4 times as long as pedicellus, F1 1.55 times as long as wide. mandible 2 dentate; palpi formula 4-3. Antenna on the slide: Scape 5.7, P 1.5, F1 1.44, F2 1.5, F3 1.27, F4 1.25, F5 1.12, F6 1.04, C 2.56 as long as wide. Clava 1.2 times as long as F5-F6 together. Antenna almost as *E. heliococci*.

Mesoscutum about 1.7 times as wide as long; scutellum as long as wide, without apical laminae; Apical laminae of scutellum 0.13 times as long as scutellum length without apical laminae.

Gaster shorter than thorax (33:40), and 0.66 times as long as head and thorax together.

Sculpture on mesoscutum and scutellum similar, composed of small rounded cells.

Relative measurements. MT 37, MTS 14, MTFT 12, AOL 4, POL 6.

Male. Unknown.

Diagnosis. The new species is close to *E. pilosulus* and *E. heliococci* and differs from both of them in the characters given in Table 2.

Distribution. Georgia

Host. Unknown

Ericydnus nino Japoshvili sp. n.

(Color pl. 3, figs. 2d, e, 3)

Material examined. Holotype female on the slide labeled: "Ericydnus nino Japoshvili, Georgia: Ambrolauri, Shaori right bank, swept on the grass, 19.VIII.2005, G. Japoshvili".

Description. Female holotype. Length 1.65 mm (CPD) (Figs. 2 d, e)

Body generally black with metallic reflection. Mandible

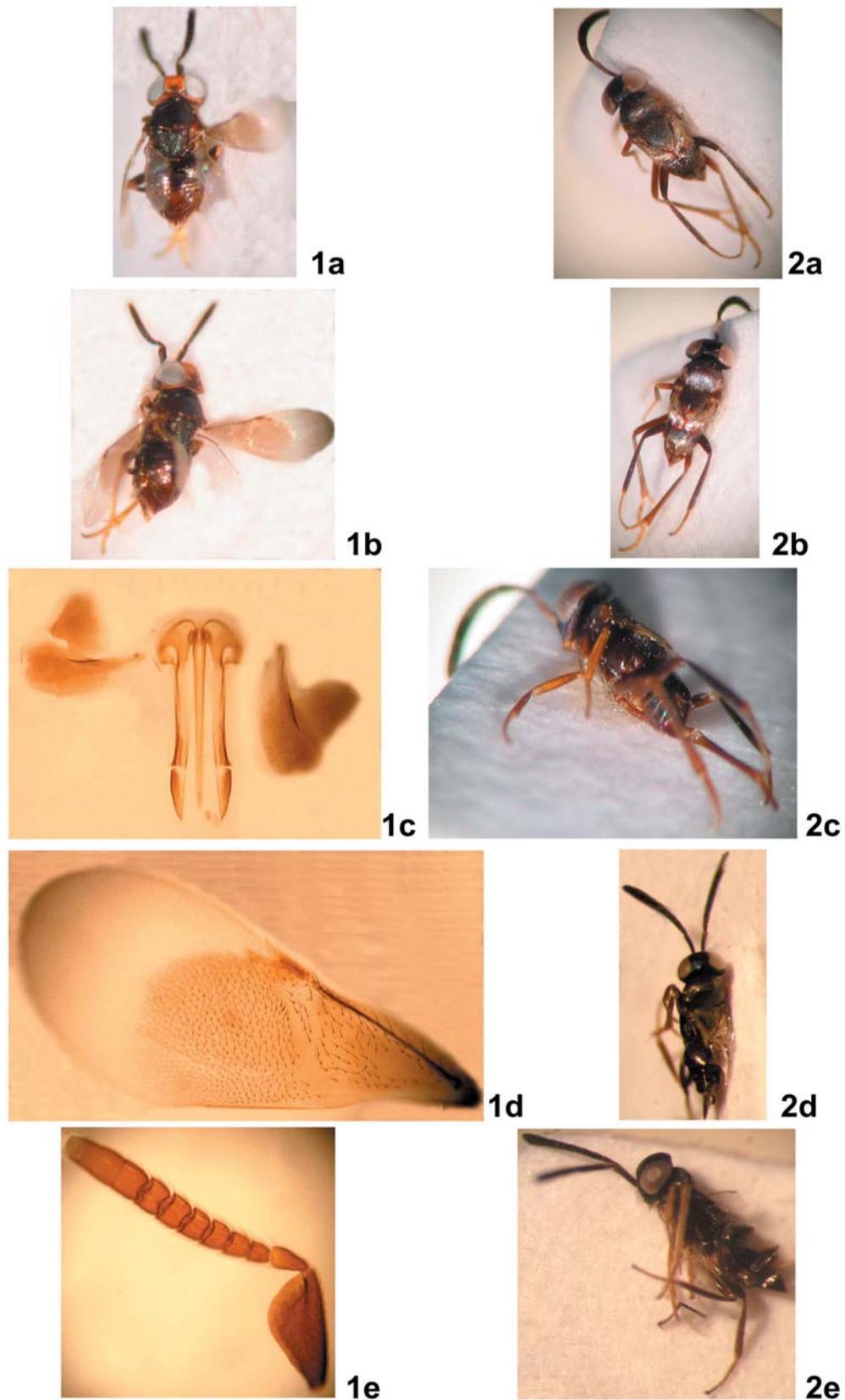


Fig.1 *Aschitus imeretinus* sp. n., female: a, b – total view; c – ovipositor; d – forewing; e – antenna.

Рис. 1. *Aschitus imeretinus* sp. n., самка: а, б – внешний вид; с – яйцеклад, d – переднее крыло; е – антенна.

Fig. 2 *Ericydnus luka* sp. n., *E. nino* sp. n., females: a, b, c – *E. luka* sp. n.; d, e – *E. nino* sp. n.

Рис. 2 *Ericydnus luka* sp. n., *E. nino* sp. n., самки: а, б, с – *E. luka* sp. n.; d, е – *E. nino* sp. n.

brown. Maxillary and labial palpi yellow. Radicula, antennal, scape pedicel and funicle segments bluish brown with metallic reflection. FV, Mesoscutum, First gastral tergite with green metallic reflection. Genae, Axilla, Tegulla, Mesopleuron with violet metallic reflection. Gaster except first tergite entirely black with golden metallic reflection. All Legs dark brown almost black. Only joints, apical $\frac{3}{4}$ of midtibia; dorsal side of apical $\frac{1}{3}$, ventral side of fore tibia; and 1-4 tarsal segments yellow. Fore wing virtually hyaline.

Head about 1.1 times (39/36) as wide as high and about 3.25 times as wide as FV, FV about 1.6 times as long as wide; OOL 0.5 as long and OCL 1.5 as long as POD; ocelli forming an triangle of about 80°; antenna with scape about 1.50-1.65 times as long as club and 6 times as long as wide, pedicellus 1.6 times as long as broad, Clava 1.28 times as long as F5-F6, Antenna with first funicular segment 1.25 times as long as pedicellus, other proportions as in Fig. 1. mandible 2 dentate; palp formula 4-3, sensillae present on F1-F6 in two rows.

Mesoscutum about 1.45 times as wide as long; scutellum about 1.14 times as wide as long; Wings shortened, forewing reaching hardly beyond base of gaster.

Gaster 0.8 times as long as head and thorax together. Ovipositor (as in Fig. 3) not exerted.

Paratype (slide-mounted). Toruli separated by own lengths and from anterior ocellus by about 2.5 times distance of torulus from eye margin; eye about 1.5 times as long as malar space, the latter rounded in facial view; mouth width subequal to eye length. Sculpture on mesoscutum and scutellum similar, composed of small rounded cells. Syntergum about 3 times as wide as long. Relative measurements: MSW 40, MSL 28, SCW 22, SCL 25, FV 20, AOD 2, POD 2, POL 14, HW 49, HH 47, EL 33, MS 10, TA 29, OL 59, MT 61, GL 7.3.

Male. Unknown.

The new species is close to *E. apterogenes* and *E. pilosulus* and differs from both of them in the characters given in Table 3.

Distribution. Georgia.

Host. Unknown.

Ericydus robustior Mercet, 1921

Material examined. 1♂, Georgia: Kharagauli, Choda swept on the grass, 7.IX.2005, G. Japoshvili (Card mounted).

Distribution. Azerbaijan, Croatia, Czechoslovakia, France, *Georgia, Germany, Spain, Sweden, Turkmenistan, Uzbekistan, Yugoslavia. New records for Georgia.

Hosts. *Tryonimus multivorus*, *T. perrisii* (Hemiptera: Pseudococcidae).

Genus *Eucoccidiphagus* Hoffer, 1963

Eucoccidiphagus brevicornis (Kurdjumov, 1912)

Material examined. 1♀, Georgia: Kaspi, Doesi, Ex *Eriopeltis festucae* on the grass, 14.IX.2005, Sh. Barjadze, on the slide.

Distribution. Bulgaria, Czech Republic, *Georgia, Hungary, Moldova, Russia, Ukraine. New genus record for Caucasus.

Hosts. *Eriopeltis festucae* (Coccidae), *Acanthococcus greeni*, *A. obscurus*, *Eriococcus greeni*, *E. obscurus*, *Greenisca placida* (Hemiptera: Eriococcidae)

Genus *Prionomitus* Mayr, 1876

Prionomitus tiliaris (Dalman, 1820)

Material examined. 1♀, Georgia: Ambrolauri, Shaori swept on the grass, 17.VIII. 2005, G. Japoshvili (Card mounted).

Distribution. Austria, Azerbaijan, Czech Republic, Denmark, Finland, France, *Georgia, Germany, Hungary, Ireland (North & South), Italy, Sicily, Kazakhstan, Korea-North, Lithuania, Moldova, Mongolia, Norway, Poland, Russia, Sweden, United Kingdom (excl. Northern Ireland), England, United States of America. New record for Georgia.

Hosts. *Cacopsylla melanoneura*, *C. peregrine*, *C. pyri*, *C. mali*, *C. ulmi* (Hemiptera: Psyllidae).

Genus *Trichomasthus* Thomson, 1876

Trichomasthus marsus (Walker, 1837)

Material examined. 1♀, Georgia: Kaspim Doesi, ex *Eriopeltis festucae* on the grass, 28.VIII.2005, Sh. Barjadze; 2♂ same data card mounted; 1♂ same data on the slide.

Distribution. *Georgia, Germany, United Kingdom (excl. Northern Ireland). New record for the Caucasus.

Hosts. *Eriopeltis festucae*, *Phyllostroma myrtilli* (Hemiptera: Coccidae).

Genus *Tyndarichus* Howard, 1910

Tyndarichus scaurus (Walker, 1837)

Material examined. 1♀, Georgia: Kharagauli, Shagele, Swept on the grass, 8.IX. 2005, G. Japoshvili (Card mounted).

Distribution. Armenia, Austria, Belarus, Czech Republic, Denmark, Estonia, Finland, *Georgia, Hungary, Italy, Lithuania, Moldova, Mongolia. Netherlands, Poland, Romania, Russia, Slovakia, Sweden, Ukraine, United Kingdom (excl. Northern Ireland). New record for Georgia.

Hosts. *Cidaria ocellata*, *Eupithecia* sp., *Eu. abietaria*, *Eu. actaeata*, *Eu. arcteata*, *Eu. castigata*, *Eu. centaureata*, *Eu. icterata*, *Eu. innotata*, *Eu. pimpinellata* (Geometridae), *Depressaria heracliana*, *D. pastinacella* (Oecophoridae), *Ypsolophus parenthesesellus* (Yponomeutidae) (Lepidoptera); *Copidosoma sosares*, *C. truncatellum*, *Litomastix serricornis*, *L.* sp. (Chalcidoidea: Hymenoptera).

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