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REVIEW OF THE GENUS *ENTEDON* (HYMENOPTERA, EULOPHIDAE, ENTEDONINAE) IV. REVISION OF UKRAINIAN SPECIES OF *HERCYNIA* GROUP

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Review of the Genus *Entedon* (Hymenoptera, Eulophidae, Entedoninae). IV. Revision of Ukrainian Species of *hercynia* Group. Gumovsky A. V. — The Ukrainian species of *hercynia* group are revised. 7 species are recognized, 6 of them are new for the region. *E. (E.) procioni* Erdős, *E. (E.) gracilior* Walker, *E. (E.) heyeri* (Ratzeburg), *E. (E.) abdera* Walker, *E. (E.) ukrainicus* sp. n., *E. (E.) ergias* Walker, *E. (E.) diotimus* Walker are found in Ukrainian fauna. 5 new synonymies are established: *E. molybdaenus* Erdős, 1944, *E. urticarii* Erdős, 1951, *E. meliloti* Askew, 1992 = *E. (E.) procioni* Erdős, 1944, *E. loti* Erdős, 1944 = *E. (E.) diotimus* Walker, 1839, *E. nigratarsis* Erdős, 1944 = *E. (E.) abdera* Walker, 1839. It is found that male paralectotype of *E. longus* Bouček, 1968 belongs to *E. (E.) procioni* Erdős, 1944. Diagnostic characters of the species group, the intraspecific variations and characters used for taxonomic purposes are discussed. Some new geographic records for other regions of Palearctic are given, key to the Ukrainian species is proposed.

Key words: Hymenoptera, Eulophidae, Entedoninae, *Entedon*, *hercynia* species group, Ukraine, Moldova, Romania, Hungary, Greece, Armenia, Georgia, Far East Russia, East Siberia.

Обзор рода *Entedon* (Hymenoptera, Eulophidae, Entedoninae). IV. Ревизия видов группы *hercynia* фауны Украины. Гумовский А. В. — В работе ревидованы виды группы *hercynia* фауны Украины: 7 видов указано, 6 из них — новые для этого региона. *E. (E.) procioni* Erdős, *E. (E.) gracilior* Walker, *E. (E.) heyeri* (Ratzeburg), *E. (E.) abdera* Walker, *E. (E.) ergias* Walker, *E. (E.) diotimus* Walker и *E. (E.) ukrainicus* sp. n. указаны для фауны Украины. Установлено 5 новых синонимов: *E. molybdaenus* Erdős, 1944, *E. urticarii* Erdős, 1951, *E. meliloti* Askew, 1992 = *E. (E.) procioni* Erdős, 1944, *E. loti* Erdős, 1944 = *E. (E.) diotimus* Walker, 1839, *E. nigratarsis* Erdős, 1944 = *E. (E.) abdera* Walker, 1839. Установлено, что паралектотип (♂) *E. longus* Bouček, 1968 относится к *E. (E.) procioni* Erdős, 1944. Обсуждены диагностические признаки данной группы видов, особенности внутривидовой изменчивости и признаков, которые используются для диагностики отдельных видов, приведены некоторые новые находки из других регионов Палеарктики.

Ключевые слова: Hymenoptera, Eulophidae, Entedoninae, *Entedon*, группа видов *hercynia*, Украина, Молдова, Румыния, Венгрия, Греция, Армения, Грузия, Дальний Восток России, Восточная Сибирь.

This paper represents the next part of a comparative study of the genus *Entedon* Dalman (Hymenoptera, Eulophidae, Entedoninae). Previous sections were dealing with infrageneric partitioning of the genus (Gumovsky, 1997) and revisions of minor species groups: *crassiscapus* (Gumovsky, 1998 a) and *kerteszi* (Gumovsky, 1998 b). Species group of *hercynia* is one of the most numerous groups within subgenus *Entedon* (more than 20 described species and also many still undescribed). This group will be revised on broad scale later (Gumovsky, in preparation), and I propose a brief review of the species recorded from Ukraine.

Species group *hercynia*

Diagnosis. Frontal fork absent, clypeus truncate, fore tibiae with two white stripes or fully darkened, trochanters darkened, lateral sulcus incomplete.

Both sexes. Marginal vein of fore wing thin, pale or light brown, occipital margin sharp, often forming more or less raising crest with protruding, rounded off apically horn-like peaks (like in *squamosus* species group); genae

weakly curved; submedian areas of propodeum not convex, their surface varies (smooth, coriaceous, reticulated); median carina with or without more or less expressed furrows along, sometimes diverging apically; petiole wider than long, mostly reduced to narrow band; submarginal vein before its break bears mostly 2, but sometimes 3 (*E. (E.) apionis*, *E. (E.) tachyptereli*, *E. (E.) abdera*) setae on its dorsal side; speculum closed or open, can be subject of sexual dimorphism: closed in males and partly closed or open in females (*E. (E.) procioni*).

Males. Funicle 4- or 3-segmented; male gaster sometimes with pale basal spot, its presence may be subject of intraspecific variation.

The group currently includes European *E. (E.) hercyna* Walker, *E. (E.) apionis* Erdős, *E. (E.) procioni* Erdős, *E. (E.) gracilior* Graham, *E. (E.) reticulatus* Erdős, *E. (E.) calcicola* Graham, *E. (E.) ulicis* Perris, *E. (E.) heyeri* (Ratzeburg), *E. (E.) abdera* Walker, *E. (E.) ukrainicus* sp. n., Holarctic *E. (E.) ergias* Walker, Palaearctic *E. (E.) diotimus* Walker, *E. (E.) alveolatus* Gumovsky from Far East Russia, Chinese *E. (E.) pini* Yang, *E. (E.) broussonetiae* Yang, *E. (E.) pumilae* Yang, *E. (E.) tumiditempli* Yang, *E. (E.) betulae* Yang, *E. (E.) wilsonii* Yang, Nearctic *E. (E.) ashmeadi* Schauff, *E. (E.) bigeloviae* Ashmead, *E. (E.) columbianus* Ashmead, *E. (E.) genei* Schauff, *E. (E.) leucopus* (Ashmead), *E. (E.) anthonomi* Schauff, *E. (E.) pecki* Schauff, *E. (E.) procerus* Schauff, *E. (E.) robustus* (Crawford), *E. (E.) tachypterelli* Gahan, *E. (E.) teedoe* Schauff.

Key for Ukrainian species of *hercyna* group of the subgenus *Entedon* (*Entedon*)

Таблица для определения видов группы *hercyna* подрода *Entedon* (*Entedon*) фауны Украины

- | | | |
|---------|--|-----------------------------------|
| 1 (2). | Fore tibia mostly darkened, at most with light tip, but with no light stripes | 3 |
| 2 (1). | Fore tibia with two longitudinal stripes, occasionally mostly light with one dark dorsal strip (remnant of dark foretibial coloration resulting from fusing of the light stripes) | 5 |
| 3 (4); | Speculum closed (basal vein meets cubital), fore wing of both sexes hyaline; pedicel 1.5–2 times as long as broad, funicular joints almost quadrate; male antenna with 3-segmented funicle and 2-segmented clava; propodeal surface smooth or somewhat coriaceous; first three mid and hind tarsi light; female gaster 1.2–1.3 (at most 1.5) times as long as broad; male gaster sometimes with small, but clear light basal spot. Smaller species, 1.6–2.2 mm | <i>E. (E.) diotimus</i> Walker |
| 4 (3). | Speculum open, female fore wing with dark median spot; female pedicel 3 times as long as broad, funicular joints elongate; 1 st funicular joint of male about 3.75 times as long as broad; male antenna with 4-segmented funicle and 1-segmented clava; propodeal surface densely reticulated; all tarsi darkened; male gaster without light basal spot. Bigger species, 2.5–3.2 mm..... | <i>E. (E.) abdera</i> Walker |
| 5 (6). | Hind ocellus equidistant from inner eye margin and occipital margin, frontal lobes somewhat produced forwards, their outer margins forming a raised border along the orbits; gena rounded; occipital margin forming sharp crest with horn-like lateral elevations; propodeum smooth and shiny, its lateral areas somewhat convex, but lateral sulcus incomplete; male antenna with 4-segmented funicle and 1-segmented clava; male gaster with broad light basal spot, gastral petiole at least as long as broad | <i>E. (E.) ergias</i> Walker |
| 6 (5). | Distance between hind ocellus and occipital margin shorter, than distance between the ocellus and inner eye margin, frontal lobes hardly produced forwards, without border along the orbits; gena slightly rounded; if occipital margin marked off, then its lateral elevations weakly raised; propodeum coriaceous to reticulated, its lateral areas mainly flat; male antenna with 3- or 4-segmented funicle and 2- or 1-segmented clava; male gaster rarely with light basal spot | 7 |
| 7 (8). | Not more than 1/2 of hind tibia darkened, 1 st funicular antennal joint in female 1.8–2.1 times as long as broad, gaster as long as head plus thorax; propodeum reticulated, especially near median carina | <i>E. (E.) gracilior</i> Walker |
| 8 (7). | Hind tibia mostly darkened, only their proximal and distal end light | 9 |
| 9 (10). | Antennal funicular joints of both sexes almost quadrate; speculum of fore wing closed; female gaster short-ovate, at most 1.3 times as long as broad; male gaster rarely with light basal spot. Small species, 1.6–2.2 mm | <i>E. (E.) heyeri</i> (Ratzeburg) |
| 10 (9). | Antennal funicular joints of both sexes elongate; 1 st funicular joint at least twice as long as broad; closeness of fore wing speculum varies from completely closed to open; female gaster longer; bigger species, 2.5–3.0 mm | 11 |

- 11 (12). Head somewhat more than twice as broad as long in dorsal view, occipital margin clear, sharp at least in median part, POL 2.2–2.3 OOL; only fore tarsi and last tarsomeres of mid and hind legs darkened; pedicel 2.66 times as long as broad, 1st antennal joint 4, 2nd–2.8, 3rd–1.7, clava — about 2.4 times as long as broad in female, fore wing speculum closed in males, open or closed in females; 2.3–3.1 mm *E. (E.) procioni* Erdős
- 12 (11). Head about 1.8 times as broad as long in dorsal view, occipital margin blunt, POL 1.66 (♀) — 2 (♂) OOL; all tarsi darkened (only first tarsomeres of mid and hind legs somewhat lighter); pedicel 2.5 times as long as broad, 1st antennal joint 2.5, 2nd and 3rd — twice, clava — about 2.33 times as long as broad in female, fore wing speculum open in both sexes; 1.2–1.3 mm
..... *E. (E.) ukrainicus* sp. n.

Entedon (Entedon) abdera Walker, 1839

Entedon Abdera Walker, 1839 : 98; Graham, 1959 : 188; 1963 : 196; Bouček & Askew, 1968 : 78; — *punctatus* Thomson, 1878 : 244; ? Erdős, 1944 : 54; — *nigritarsis* Erdős, 1944 : 20, syn. n.

Type material. Lectotype ♀, *Entedon nigritarsis* Erdős, ROMANIA, Rév, 28.05.1912 (Biry), selected by M. de V. Graham, designated by Cs. Thuroczy, 1991, TMB № 4856; paralectotype ♂, HUNGARY, "Nygrádszakál, V. 1922 (Biry)" (TMB).

Other material. ♀, UKRAINE, Kyiv, Babyn Yar, 07.1995 (Gumovsky); 2♀, natural boundary "Lysa hora", 14.05.1997 (Gumovsky); ♀, ♂, ibid, reared from stems of plant of Lamiaceae, 17.05.1997 (Gumovsky) (SIZK).

Discussion. I have not seen lectotype of *E. (E.) abdera*, but I saw specimens determined by Dr. R. R. Askew, who studied the lectotype, and the concept of the species is quite clear. Similarity of *E. (E.) nigritarsis* and *E. (E.) abdera* was pointed out by Graham (1963) and Bouček & Askew (1968). All specimens examined by me are conspecific, and I do not see any special features distinguishing these two species.

E. (E.) abdera was located in species group *sparetus* by Graham (1963), later it was removed from the group (Graham, 1971), ever since it remained unplaced. Location of *E. (E.) abdera* in *hercyna* species group (Gumovsky, 1997) is supported by truncate clypeus, missing frontal fork and homogeneously darkened fore tibia. Habitually *E. (E.) abdera* resembles some species of *costalis* species group bearing anterior margin of clypeus slightly produced forwards (*E. (E.) philiscus* Walker, *E. (E.) pharnus* Walker, *E. (E.) fufius* Walker, and others, see Gumovsky, 1997). *E. (E.) abdera* differs from all of them in having truncate clypeus.

Host. Bouček (1977) recorded *E. (E.) abdera* as parasite of unidentified host in fruits of *Linaria dalmatica* L. in Macedonia. This record causes some doubts, because there were no other similar records, despite prolonged programs of study on entomofauna associated with *Linaria* spp. in Central Europe and Ukraine (Paetel, 1997; Gassman, Paetel, 1998; my own research, 1994–1998) were executed. Our data on parasitism of *E. (E.) abdera* on a host in stems of indetermined plant of family Lamiaceae demonstrate, that either host plant was misidentified or the spectrum of host plants of this species is rather wide.

Distribution. Great Britain, Sweden, Hungary, the former Czechoslovakia (Bouček & Askew, 1968), Macedonia (Bouček, 1977), new for Ukraine.

Entedon (Entedon) diotimus Walker, 1839

Entedon Diotimus Walker, 1839 : 101; — *Mera* Walker, 1839 : 97 (ex parte); — ? *cyanelus* Zetterstedt, 1838 : 431; — ? *cyanelus* Thomson, 1878 : 245; — *transversalis* Erdős, 1944 : 55; — *loti* Erdős, 1944 : 41, syn. n.

Type material. Lectotype *E. loti* Erdős, ♀, HUNGARY, Mt. Kőszeg, 25.05.1944 (Erdős), selected by Graham, 1973, designated by Bouček & Graham, 1978, № 4861; paralectotypes 3♀ [№ 4862–4863, 8211], ♂ [№ 8212]; note: ♀ paralectotype (fig. 1) bears labels "Type", "Radnai h., 1943.07.20" (Erdős, № 4863) (TMB).

Other material. 2 ♀, Czech Republik, Praha — Ruzyne, 8.07.1952 (Bouček); 2♀, Bohemia cent., Praha, 07.1945 (Bouček); 4♂, Ukraine, Kyiv, Pheophania, 06.06.1996 (Gumovsky); 9 ♀, 22 ♂, Kyiv, Babyn Yar vicinity, 7.06.1996 (Gumovsky); 2 ♂ (with basal gastral light spot), Kyiv, Trukhanov Island, Park "Druzhby narodiv", sweeping near entrance to the Park, on *Genista tinctoria*, *Lotus corniculatus*,

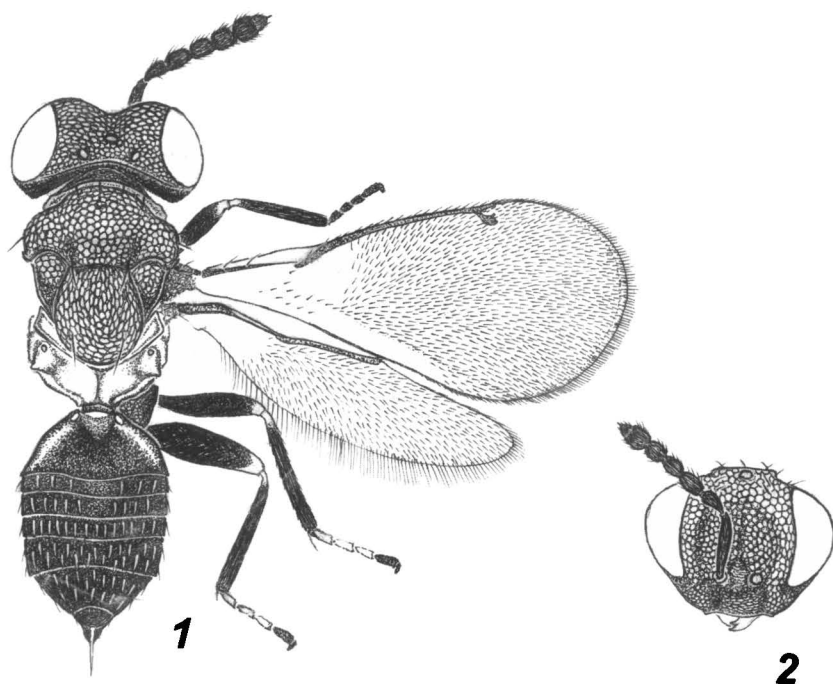


Fig. 1. *Entedon (Entedon) diotimus*, ♀, paralectotype of *Entedon loti*: 1 — habitus; 2 — head in frontal view.

Рис. 1. *Entedon (Entedon) diotimus*, ♀, паралектотип *Entedon loti*: 1 — габитус; 2 — голова (вид спереди).

L. minör, *Trifolium* spp. under willow trees (Gumovsky); ♀, Zakarpats'ka oblast, Rakhiv region, Carpathian biosphere reserve, Kuziy natural boundary, mountain meadow near entrance to the boundary, 12.08.1994 (Kotenko); ♀, Moldova, Orgeev, forest, meadow with flowering grasses, 15.06.1967 (Zerova); ♀, Azerbaijan, Fil'fili, flowering grasses, 03.07.1973 (Zerova); ♀, 2 km N from Zarat, wet steppe along Caspian seacoast, 29.06.1973 (Zerova) (SIZK); 2 ♂ (with basal gastral light spot), Korea, Mt. Poktusan, Mupo brook Dehongdan, No. 380 — netting in grasses, 20.07.1977 (Dely & Draskovits); ♀, Hungary, Pará, 07.1915 (Horvath); ♂, Greece, Peloponnese, Monemvasia, 15.04.1978 (Papp) (TMB); 5 ♀, Hungary, Kisrososzi, Szentendrei Sziget, 2.08.1961 (Sundholm); 6 ♀, Sweden, Smoland, Torses, Tjäreckulla, 18.06.1989 (Danielsson); 17 ♀, 5 ♂, Torses, Getnabo, 24.06.1992 (Danielsson); 8 ♀, 2 ♂, Växjö, Eryd, 3.07.1989 (Danielsson); ♀, Växjö, S. Ereda, 4.07.1992 (Danielsson); ♀, Växjö, Helgaryd, 7.07.1989 (Danielsson); ♂, Skåna, Vallekra, Borgen, Eryd (Iertaget), 28.05.1992 (Danielsson); ♂, Dalby, Örebro, Mölla, hevat löngs jörnvögen, 13.06.1993 (Danielsson); ♀, Öl., Böda Kronopark, Thuja skogen, 20.06.1989 (Danielsson); ♂, Smoland, Växjö, Eryd, 3.07.1989 (Danielsson); ♂, Växjö, Björka, RN 1451/6318, 4.06.1983 (Danielsson); ♀, Hjorted, 20.07.1963 (A. Sundholm); ♂, Dalarna, Nes Närsjö, Bo Tjeder, 22.06.1957; 7 ♀, ♂, Örebro (A. Jansson), collected 1938, 26.06.1943, 17.06.1950, 11.06.1952, 23.06.1954, 25.06.1955, 28.06.1958; ♀, ♂, Mölle, 15.04.1958 (H. Andersson); ♂, Bl., Hjortsberga, Tulseboda, 5.06.1963 (A. Sundholm); ♂, Bl., Tjurkö, 4.07.1963 (A. Sundholm); ♂, Bl. Kyrkhalt, 14.06.1953 (A. Sundholm) (LUZM); 1 ♀, Far East Russia, Primorskiy krai, "Kedrovaya pad'" nature reserve, sand bank "kl. B. Zolotoi", 25.07.1976 (Storozheva); ♀, ibid., valley of Narva-river, meadow with diverse grass, 5.07.1976 (Storozheva); ♀, Primorskiy krai, Barabash-Levada, bottom of hill, 04.09.1989 (Zerova) (SIZK); ♀, Far East Russia, Primorskiy krai, Sputinskiy nature reserve, 2.08.1961 (Trjapitzin); ♂, "1623 Schmiedeknecht"; 2 ♀, Russia, vicinity of St. Petersburg, swept from *Trifolium*, 27.06.1934; 6 ♀, 2 ♂, Russia, East Siberia, Irkutsk region, Angara river, "Padun-na-V. Tunguske", [18]67 (Tchekanovsky); ♀, Yakutia, left bank of Lena river, "Bitiunsk nasl.", 11.07.1926 (Bianki); 6 ♀, Romania, Cluj, *Trifolium repens*, 14.07.1957 (Perju) (ZISP).

Host. Reared from pods of *Trifolium* sp. and *Lotus corniculatus* L. (Graham, 1971).

Discussion. Similarity of *E. loti* and *E. diotimus* was mentioned earlier (Bouček & Askew, 1968; Bouček, 1978). Dr. R. R. Askew (pers. comm.) is not certain that *E. loti* and *E. diotimus* are distinct species. I have not seen the lectotype of *E. diotimus*, but comparison of types of *E. loti* (fig. 1) with specimens of *E. diotimus*

identified by Dr. Zd. Bouček (who examined types) distinctly shows that *E. loti* is a junior synonym of *E. diotimus*.

Bouček (1978) synonymized *E. transversalis* with *E. diotimus*, what is confirmed here (type series of *E. transversalis* studied). *E. diotimus* was also confused with *E. cyanellus* by Thomson (1878) and Erdős (1944, 1951), what caused wrong identification of most materials of *E. diotimus* in Dr. J. Erdős's and Dr. A. Janzon's collections.

E. (E.) diotimus is widely spread and quite distinctive species with short gaster, subcircular funiculars and mostly closed speculum of fore wing. Five males of *E. (E.) diotimus* (2 from Ukraine, 2 from Far East Russia, 1 from Korea) possess small basal light spot on gaster.

Distribution. Europe (Bouček & Askew, 1968), new for Greece, Ukraine, Azerbaijan, East Siberia, Far East Russia and Korea.

Entedon (Entedon) ergias Walker, 1839

Entedon Ergias Walker, 1839 : 99; Graham, 1963 : 195; 1971 : 354;— *tenuitarsis* Thomson, Giriz, (Гириз), 1959a : 211, 1959b : 59; ? *Daurizes* Walker, 1842 : 336;— *leucogramma* Ratzeburg, 1844 : 170; Beaver, 1966, 37;— *leucogrammus* Ratzeburg (misspelling of *leucogramma*), Erdős, 1944 : 42;— *albipes* (*Eulophus*) Ratzeburg, 1844 : 165; (*Entedon*) Ratzeburg, 1848 : 166.

Material. ♀, ♂, Ukraine, Zakarpats'ka oblast, Carpathian biosphere reserve, Mala Ugol'ka natural boundary, 24.06.1997 (Gumovsky) (SIZK), 2 ♀, 3 ♂, Zakarpats'ka oblast, Uzhgorod, ex *Scolytus rugulosus*, V. 1959 (Giriz); ♀, Donets'ka oblast, Vel[ykii] Anad[ol'], 17.05.1905; 3 ♀, Lugans'ka oblast, Derkul'skoe forestry, 4.10.1954 (Belgovsky); ♀, Moldova, Ciçinau, *Prunus persica*, 14.07.1958 (Talitzky), ♀, ibid., orchard, 4–24.05.1958; ♀, Kalarash, *Prunus domestica*, 2.09.1957 (Talitzky); ♂, ibid., *Malus domestica*, 17.08.1958 (Talitzky); ♀, Sadova, 7.06.1958 (Talitzky); ♀, ♂, Kotovskoe, *Juglans regia*, "102/60", 29.06.60 (Talitzky); ♀, Armenia, Erevan, Botanical garden, *Scolytus multistriatus*, 16.06.1953 (Mirzojan); 5 ♂, Dilizhan, forest, 7.05.1950 (Mirzojan); 4 ♀, ♂, ibid., 15.05.1950; ♀, ♂, Georgia, Borjom, bred from *Scolytus pygmaeus*, 1.06.1912 (Vinogradov); 6 ♀, Russia, Moscow, *Scolytus kizschii*, 3–7.02.1960 (Maslov); ♂, ibid., 20–23.02.1960; ♀, ibid., *Scolytus scolytus*, 12.01.1961; ♂, Moskow oblast, Istra vicinity, from *Agrilus viridis* on *Alnus* sp., I. 1956 (Miasnikov); ♀, Moscow oblast, Nikolina Hora, *Agrilus betuli*, 15.12.1955 (Mjasnikov); ♀, Kostroma, 30.07.1933 (Gussakovky); ♀, Voronezhskaya oblast, Saval'skoe forestry, quadrat 91, ex birch branch infested by *Scolytus ratzeburgi*, 28.06.1962 (Sokolova); ♀, ♂, "Saltyki Ori.", ex bark *Cerasus avium* damaged by *Scolytus pruni*, 4–6.04.1897; ♀, 7 ♂, Perm vicinity, Los'va river, 10.06.1953 (Zinoviev); 2 ♀, 4 ♂, Permskaya oblast, Kungur, 12.10.1950 (Zinoviev); 2 ♂, ibid., educational forestry "Preduralie", 25.06.1956 (Borisova); 2 ♀, ibid., 3.07.1956; 2 ♂, ibid., 25.06.1956; 2 ♂, ibid., 23.06.1956 (Zinoviev); ♂, ibid., 24.01.1957; ♀, Russia, East Siberia, Yakutia, Olenek, II. 07.–I. 08.1874 (Tchekanovsky); ♀, Far East Russia, Vladivostok vicinity, Mikhailovsk forestry, 26.04.1930 (Shablinova) (ZISP); ♂, Hungary, Budapest, ex *Scolytus rugulosus*, "Ex coll. Station. Entom. Hungar.", 6.05.1917 (Györfy); ♀, Bokonycernye, Kisgyynbánya, fábol nevelve, 23.10.1986 (Podlussány); 2 ♀, 2 ♂, Germany, Sachsen (Staudinger) (TMB).

Host. Xylophagous beetles, mainly from family Scolytidae (Bouček & Askew, 1968; Beaver, 1966).

Discussion. This species is easily distinguishable among European ones by hind ocelli equidistant from both eye margin and occipital margin.

Specific characters of *E. (E.) ergias* cause some confusions about its position in *Entedon* and it was discussed by Graham (1963, 1971) and Askew (1992). Graham placed it firstly in *sparetus* species group (Graham, 1963) and removed this species in separate group (*ergias*) later (Graham, 1971). Askew (1992) paid attention to sharp occipital margin and light basal spot on male gaster, relocated this species into *squamosus* species group and proposed modified diagnosis of this group. *E. (E.) ergias* really resembles representatives of *squamosus* species group in mentioned above characters, but lacks complete lateral sulcus being main character of this group (sensu Gumovsky, 1997).

Distribution. Throughout in Europe, Iran (Bouček & Askew, 1968), new for Armenia, Georgia, Siberia and Far East Russia.

Entedon (Entedon) heyeri (Ratzeburg), 1848

Elachestus Heyeri Ratzeburg, 1848 : 174; Ratzeburg, 1852 : 218; (*Entedon*) Laboulbène, 1877 : 432; Domenichini, 1953 : 93–94; Bouček, 1964 : 668; — *diotimus* Walker, Bouček & Askew, 1968 : 80, ex parte (nec Walker, 1839).

Material. ♂ (with basal gastral light spot), UKRAINE, Kyiv, Trukhaniv Island, entrance to the Park "Druzhby narodiv", swept from vegetation under willow trees, 6.06.1995 (Gumovsky); ♂, ibid, reared from cecydomiid galls on *Salix* sp., spring 1997 (Gumovsky); ♀, Kyiv, Pheophania, 29.05.1996 (Senatos) (SIZK).

Discussion. *E. (E.) heyeri* was synonymized with *E. (E.) diotimus* Walker, by Bouček (1964), and re-validated by Graham (1971). Two white stripes on fore tibia seem to be valid and non-variable character for this species.

Host. Previous authors (summarized in Bouček & Askew, 1968) recorded gall-midges (Cecidomyiidae) as hosts for *E. (E.) heyeri*. Askew (1989) recorded parasitism of *E. (E.) heyeri* on *Apion minimum* Herbst, an inquiline in galls of sawflies and gall midges on willows (*Salix* spp.).

Entedon (Entedon) procioni Erdős, 1944

Entedon procioni Erdős, 1944 : 33; — *longulus* Erdős, 1944 : 25 [*Entedon longus* Bouček in Bouček & Askew, 1968 : 83 (nom. n for *Entedon longulus* Erdős, 1944)], ex parte, ♂; — *molybdaenus* Erdős, 1944 : 59, syn. n.; — *urticarii* Erdős, 1951 : 216, syn. n.; — *meliloti* Askew, 1992 : 123, syn. n.

Type material. Lectotype *E. procioni* Erdős (fig. 2), ♀, Hungary, Budapest, Húvösvölgy, 17.06.1908, (Biró), TMB № 5621; paralectotype *E. procioni* Erdős, ♂ Deva, designated by G. Szelényi, TMB № 5622; lectotype *E. longulus* Erdős, ♀, Romania, Tasnád, 4.07.1912 (Biry), designated by G. Szelényi, 1973, designated in Thuroczy, 1992, TMB № 8799; paralectotype *E. longulus* Erdős, ♂, So-

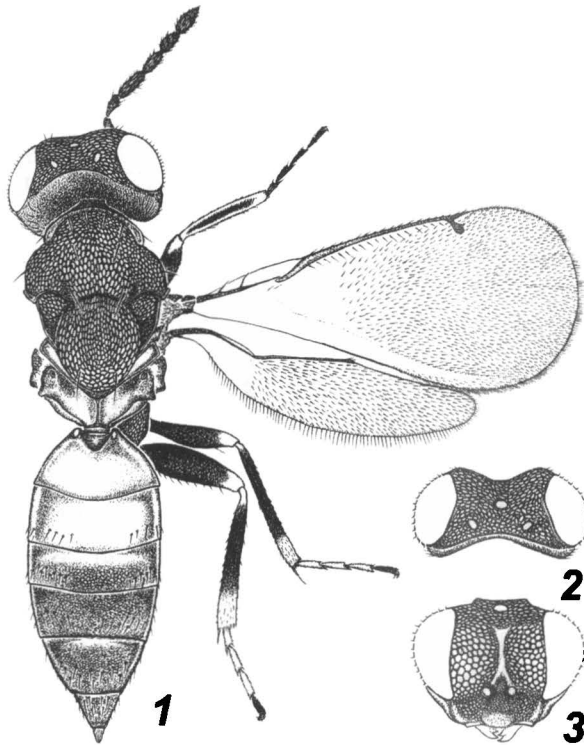


Fig. 2. *Entedon (Entedon) procioni*, ♀, lectotype: 1 — habitus; 2 — head in dorsal view; 3 — head in frontal view.

Рис. 2. *Entedon (Entedon) procioni*, ♀, лектотип: 1 — габитус; 2 — голова, вид сверху, 3 — голова, вид спереди.

pron, 1944.05.29 (Erdős), designated by G. Szélényi, 1976, TMB №4896; lectotype *E. molybdaenus* Erdős (fig. 3), ♂, Rév, 31.05.1912 (Biry), designated by M. de V. Graham, TMB № 4915; lectotype *E. urticarii* Erdős, ♀, Hungary, Kalocsa, 6.05.1947, ex *Apion urticarii* Hbst. in caule *Urtica dioicae* L. Erdős, TMB №4899; 20 paralectotypes, ♀ [TMB № 4900–4906 (4903 — 2 ♀ on a card), 8802–8804], 9 ♂ [№ 4907–4912, 8805–8807], same locality and host as lectotype, reared 26.04. — 6.05.1947 [all in TMB, designated by Cs. Thuróczy (1992)]; paratypes of *E. meliloti* Askew: ♀, France, Loiret, near Orleans, from stems of *Melilotus* sp. coll. 01.1989, reared 15.03.1989; ♂, England, Buckinghamshire, Charndon, from stems of *Melilotus altissima*, coll. 29.10.1988, reared 03.1989 (RA).

Other material. 6 ♂, Ukraine, Kyiv, Pheophania, 06.06.1996 (Gumovsky); 12 ♀, 2 ♂, Kyiv, Babyn Yar vicinity, 7.06.1996 (Gumovsky); ♀, ♂, Kyiv, Hydropark, from *Apion urticarii* Herbst in stem of *Urtica dioica*, coll. 26.04.1997, reared 1.05.1997 (Gumovsky) (SIZK).

Discussion. All the examined materials demonstrate strong similarity between the listed above species considered as synonyms. One of the most interesting characters of the species is the difference in closeness of fore wing speculum: it is open in females and absolutely or at least partially closed in males. Paralectotype male of *E. procioni* Erdős (TMB № 5622) lacks both pedicelli and flagella and has aberrantly asymmetrical and wide head. This specimen is representative of *hercyna* species group and in all likelihood belongs to the same species as female lectotype.

Paralectotype male of *E. longulus* Erdős, 1944 belongs to *hercyna* species-group (possesses two white stripes of fore tibiae, has truncate clypeus and spiracular elevations of propodeum with short projections) and represents male of the same species as *E. (E.) procioni* Erdős. The female lectotype of *E. longulus* represents a valid species of *costalis* group sensu Gumovsky, 1997.

Despite characters given by Askew (1992), male lectotype of *E. molybdaenus* Erdős (fig. 3) quite fits males of *E. (E.) procioni*. Just constriction between fourth and fifth flagellar segments (which form clava together) is somewhat deeper, but the segments

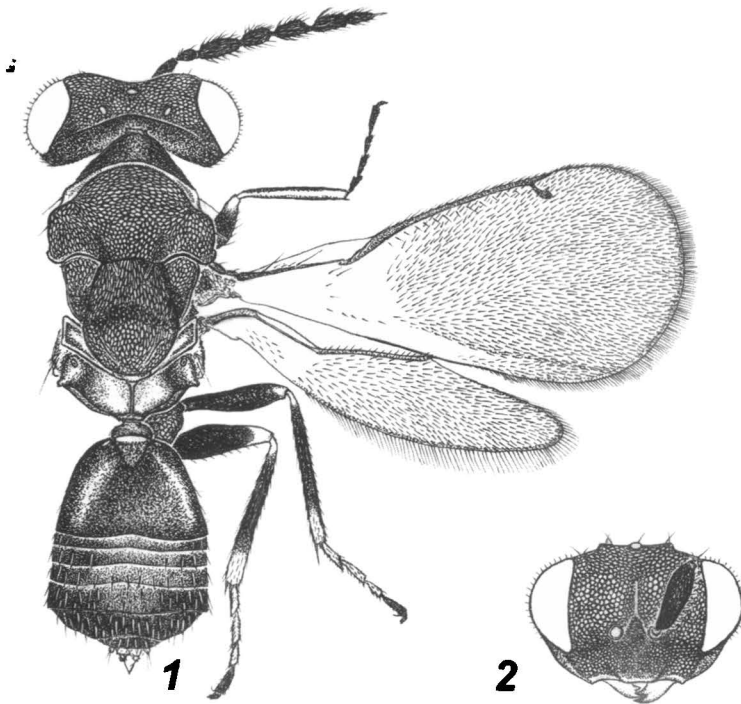


Fig. 3. *Entedon (Entedon) procioni*, ♂, lectotype of *Entedon molybdaenus*. 1 — habitus; 2 — head in frontal view.

Рис. 3. *Entedon (Entedon) procioni*, ♂, лектотип *Entedon molybdaenus*. 1 — габитус; 2 — голова, вид спереди.

certainly are more fused than separate. The constriction might be caused by glue influence during card-mounting.

Representatives of *E. urticarii* Erdös has completely the same morphological characters as *E. procioni*. Askew (1992) pointed out difference between the species and *E. molybdaenus* Erdös in extent of fore wing speculum closeness. Our studying on variety of the characters in *E. (E.) procioni* points out *E. urticarii* and *E. molybdaenus* to be junior synonyms for the species.

E. meliloti Askew quite good fits all morphological features of *E. procioni*. Askew (1992) compared *E. meliloti* with *E. hercyna* and *E. hercyna* with *E. procioni*, but not *E. meliloti* with *E. procioni*, while the latter both are the same.

The most similar species is *E. (E.) hercyna* Walker. This species differs from *E. (E.) procioni* in having longer female gaster, 2.7–3 times as long as broad (1.5–2.5 times in *E. (E.) procioni*), open fore wing speculum in male (closed in *E. (E.) procioni*) and 4-segmented male funicle (3-segmented in *E. (E.) procioni*).

Host. *Apion urticarii* Herbst in stems of *Urtica dioica* L. (Erdös, 1951; here), also bred from stems of *Melilotus* sp. in France and from stems of *Melilotus altissima* in England (Askew, 1992).

Distribution. Hungary (Erdös, 1944, 1956), France, Great Britain (Askew, 1992), new for Ukraine.

Entedon (Entedon) gracilior Graham, 1977

Entedon gracilior Graham, 1971 : 347; Askew, 1992: 125; ? — *reticulatus* Erdös, 1944 : 23; Askew, 1992 : 125.

Type material. Holotype (designation uncertain) ♂, *Entedon reticulatus* Erdös, ROMANIA, Rév, 5.06.1912 (Biry), with Erdös's label "Typus", selected and described by Cs. Thuroczy (1991), labelled as "Holotypus" TMB №4913.

Other material. ♂, UKRAINE, Zakarpats'ka oblast, Rakhiv vicinity, Kuziy natural boundary, 24.06.1997 (Gumovsky) (SIZK); ♂, SWEDEN (locality unclear), 1850 (LUZM).

Discussion. Position of type materials of *E. (E.) reticulatus* was uncertain. Erdös (1944) mentioned the only male collected 07.1918 by Biry in Szöd (Hungary). This specimens was not found in Erdös's collection, but there was a specimen from Rév (Romania) labelled as "Typus" by Erdös. Cs. Thuroczy (1991) pointed out presence of this specimen, but recorded label "Holotype" instead of "Typus", what is attached to the specimen. There were no designation of this specimen as a holo- or lectotype in the publication (Thuroczy, 1991), although it was labelled with TMB label "Holotypus" and TMB number 4913.

Askew (1992) discussed position of the holotype of *E. reticulatus* and concluded that the specimen mostly agrees with original description. Askew mentioned, that absence of small dark spot near stigma (pointed out in original description) and disagreement of labels cause doubts in validity of holotype. I suppose, that the wrong data were pointed out by mistake in the original publication: the original identification label "*Entedon reticulatus* Erd., det. Erdös" and label "Typus" quite clearly demonstrate, that this specimen was treat by Erdös when described this species.

Askew (1992) proposed *E. (E.) reticulatus* Erdös to be the same as *E. (E.) gracilior* Graham, and ambiguity with type materials is the only obstacle for synonymy, also holotype *E. (E.) reticulatus* is somewhat smaller than other specimens of *E. (E.) gracilior*. True position of these species demands on future studies.

Host. Unknown.

Distribution. Great Britain (Graham, 1971), probably Hungary (Erdös, 1944), new for Ukraine.

***Entedon (Entedon) ukrainicus* Gumovsky, sp. n.**

Type material. Holotype ♀ (fig. 4), Ukraine, Kyiv, natural boundary "Lysa hora" ["Bold mountain"], 14.05.1997 (Gumovsky); paratypes 3 ♂, 4 ♀, the same data as holotype (SIZK).

Female (fig. 4). Length 1.5 mm. Body dark green, almost black. Antenna brown to black. Tips of femora narrowly yellow, posterior end of hind tibia light in about its distal 1/5, mid tibia in about 1/7; fore tibia with 2 light frontal stripes; all tarsi darkened, only first tarsomeres of mid and hind legs somewhat lighter (greyish); venation of wings light brown.

Head in dorsal view about 1.8 times as broad as long; POL 1.66 OOL, ocelli small, hind ocelli separated from eye margin by distance somewhat longer than its major diameter and separated from occipital margin by distance equal to its major diameter. Occipital carina blunt, hardly visible. Eye with short, sparse pilosity, eye height 3 times as long as malar space. Dorsal surface of head very lightly reticulated, almost smooth, with poorly visible meshes.

Head in frontal view about 1.2 times as broad as long. Interocular distance 3 times as long as eye breadth. Oral fossa twice as broad as length of malar space. Anterior

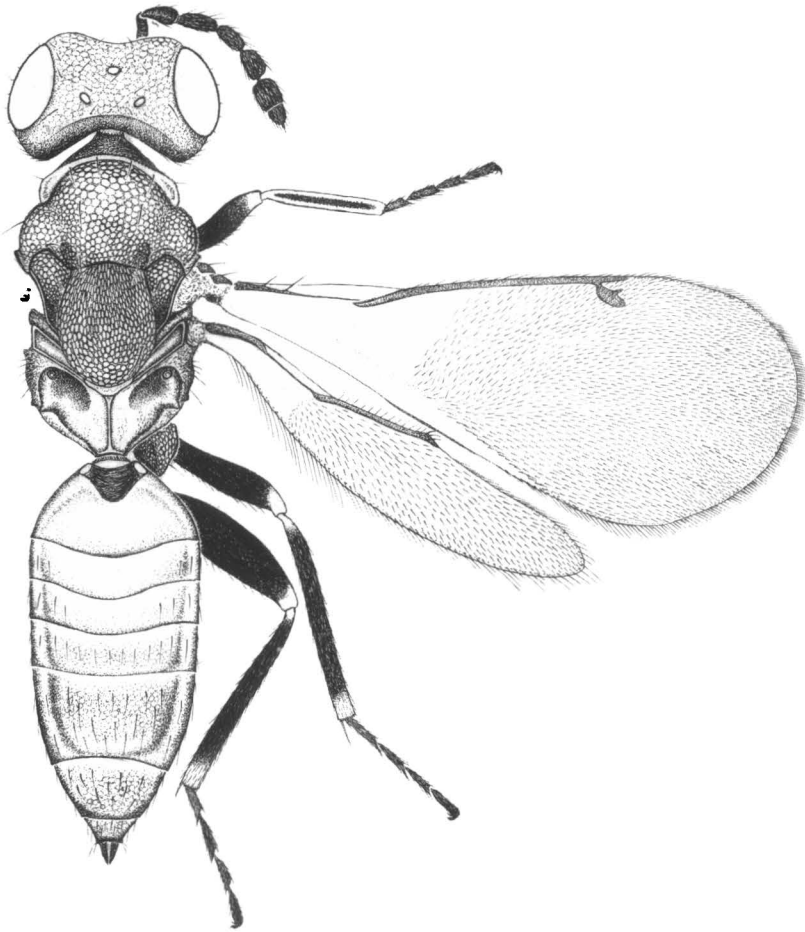


Fig. 4. *Entedon (Entedon) ukrainicus*, ♀, holotype, habitus.

Рис. 4. *Entedon (Entedon) ukrainicus*, ♀, голотип, габитус.

margin of clypeus truncate. Antennae inserted somewhat above level of ventral eye margins, located in a frontal fovea. Scape 0.73 times as long as eye height, 5.5 times as long as broad; combined length of pedicellus and flagellum slightly shorter (25/26) than breadth of head; pedicel 2.5 times as long as broad. 1st funicular segment 2.5 times as long as broad, 1.25 (5/4) times as long as second, 2nd and 3rd twice, clava 2.33 times as long as broad, with short terminal spine.

Thorax with propodeum about 1.68 times as long as broad. Pronotum somewhat elongate, only 2.12 times as broad as long, pronotal collar weakly marked off. Mesoscutum about 1.7 times as broad as long, the parapsidal grooves visible by impressions near scutellum. Scutellum somewhat longer than broad and than mesoscutum; propodeal surface smooth, median carina complete, somewhat diverging apically; lateral sulcus traceable, supracoxal flange and nucha of moderate size, triangular in shape, propodeal calli with 1 long and 3 shorter setae. Fore femur almost 4 times as long as broad, fore tibia about 7.5 times as long as broad, with very short apical spine, combined length of fore tarsi the same as length of the tibia, fore tarsi in ratio (from 1st to 4th) — 3 : 4 : 3 : 5; spur of fore tibia hardly visible; mid femur 3 times as long as broad, mid tibia 7–8 times as long as broad, spur of mid tibia twice longer than breadth of the tibia, combined length of mid tarsi 0.8 times as long as length of the tibia, mid tarsi in ratio — 5 : 4.5 : 4 : 5; hind femur 3.6 times as long as broad, hind tibia about 10 times as long as broad, spur of hind tibia about 2/3 as long as breadth of the tibia, combined length of hind tarsi 0.76 times as long as length of the tibia, hind tarsi in ratio 5 : 5 : 4 : 5. Femora and tibiae moderately setose.

Fore wing 2.26 times as long as broad; costal cell comparatively narrow; 8 times as long as broad, 2/3 of marginal vein; submarginal vein with 2 dorsal setae before its “break”, where it meets parastigma; postmarginal vein as long as stigmal; speculum open, basal vein bare, cubital vein represented by several hairs; fringe of apical margin somewhat longer than breadth of marginal vein in mid part.

Gastral petiole reduced. Gaster as long as combined length of head plus thorax, 2.22–2.23 times as long as broad.

Male. Differs from female as follows. Length 1.3 mm. Head in dorsal view 1.6 times as broad as long; POL twice OOL, ocelli small, hind ocellus separated from the eye margin by distance as long as its major diameter, and separated from occipital margin by distance about 2/3 its major diameter. Head in frontal view as broad as long. Interocular distance 4.25 times as long as eye breadth. Oral fossa 2.4 times as broad as length of malar space. Scape somewhat shorter (13/14) than eye height, 2.6 times as long as broad; combined length of pedicellus and flagellum 1.66 times as long as breadth of head; pedicellus 1.6 times as long as broad. 1st funicular segment 4 times, 1.33 times as long as second, 2nd 3 times, 3rd 1.25 times, clava 2.5 times as long as broad, with short terminal spine. Thorax with propodeum about 1.8 times as long as broad. Costal cell of fore wing 10.66 times as long as broad, about 0.6 times as long as marginal vein; postmarginal vein twice shorter than stigmal. Gaster 1.4 times as long as combined length of head plus thorax, 1.8 times as long as broad.

Discussion. The new species resembles *E. (E.) procioni* in total habitus and coloration, but differs from the latter as showed in couplet 12 of my key. Also *E. (E.) ukrainicus* sp. n. possesses very light dorsal sculpture of head and thorax, what is unusual for *Entedon*, and may be caused by smaller size of the species.

Host. Unknown.

Distribution. Ukraine.

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