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# New data to the Microlepidoptera fauna of Hungary, part XXI (Lepidoptera: Batrachedridae, Gelechiidae, Gracillariidae)

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**Abstract** – The first records of *Batrachedra confusella* Berggren, Aarvik, Huemer, Lee et Mutanen, 2022 (Batrachedridae), *Dichomeris acuminatus* (Staudinger, 1876) (Gelechiidae), *Caloptilia jurateae* Bengtsson, 2010, and *Dialectica scalariella* (Zeller, 1850) (Gracillariidae) (all Lepidoptera) from Hungary are presented.

**Key words** – new records, faunistics, leaf mine, *Echium*, light trap

## INTRODUCTION

In the last two years several micromoth (Lepidoptera) species have been recorded as new for the fauna of Hungary (Szabóky 2023, Takács & Kőszegi 2024, Tóth *et al*. 2024). The aim of this paper is to present the first records of further four species from Hungary, namely *Batrachedra confusella* Berggren, Aarvik, Huemer, Lee et Mutanen, 2022 (Batrachedridae), *Dichomeris acuminatus* (Staudinger, 1876) (Gelechiidae), *Caloptilia jurateae* Bengtsson, 2010, and *Dialectica scalariella* (Zeller, 1850) (Gracillariidae). Previously, none of these species have been represented by specimens from Hungary in the Lepidoptera Collection of the Hungarian National Museum Public Collections Centre – Hungarian Natural History Museum, Budapest (HNHM) (Gergely Katona, personal communication). Altogether five species of *Batrachedra*

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Herrich-Schäffer, 1853, eight species of *Dichomeris* Hübner, 1818, 17 species of the *Caloptilia* Hübner, 1825, and three species of *Dilalectica* Walsingham, 1897 have been known to occur in Hungary (Pastorális & Buschmann 2018, Szabóky & Takács 2021, Szabóky 2023, present paper).

Photos were taken with a Canon 450 D and Pentax camera set on a Carl Zeiss Stemi-2000 binocular stereomicroscope.

## RESULTS

### Batrachedridae

#### *Batrachedra confusella* Berggren, Aarvik, Huemer, Lee et Mutanen, 2022 (Figs 1–2)

*Material examined* – Hungary: one female, Vas County, Kőszeg, Olmódi street, 13.V.2024, leg. A. Takács, det. I. Richter, gen. prep. 35902 IR. The voucher specimen is deposited in the HNHM.

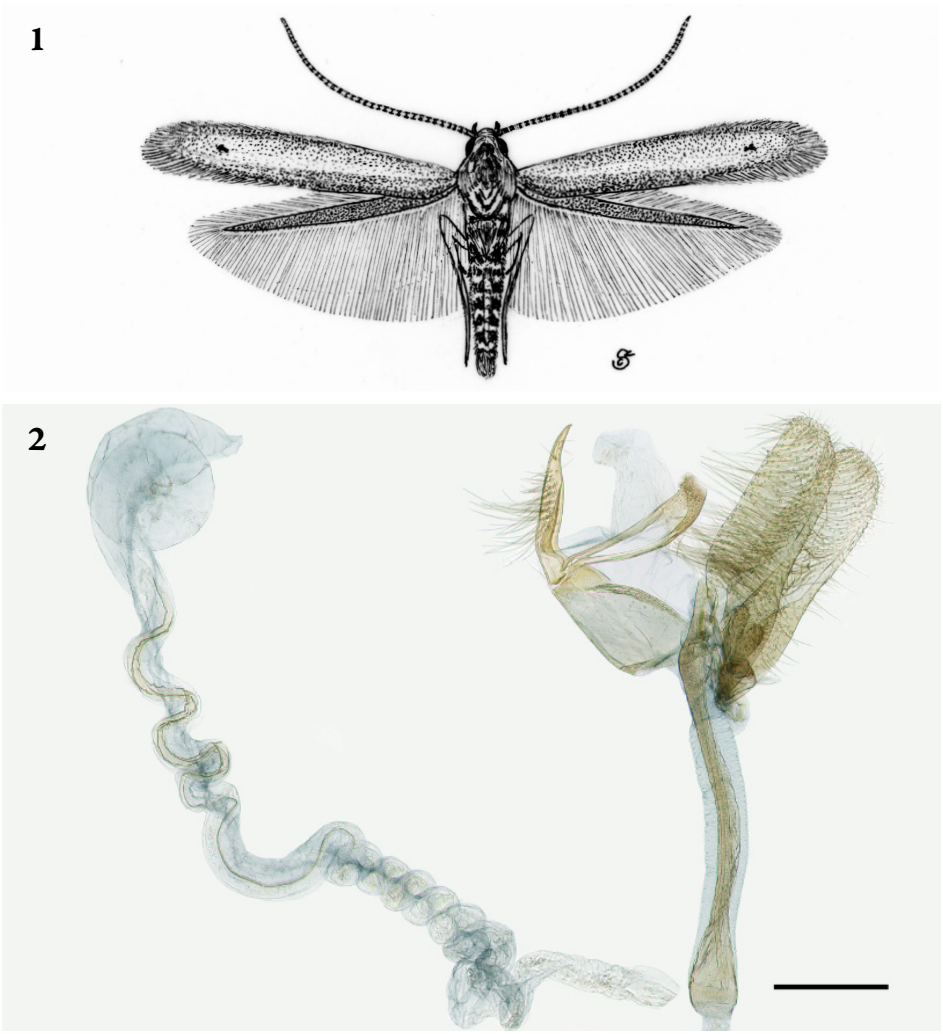
*Remarks* – First record from Hungary. The voucher specimen was attracted to a pheromone trap applied with an experimental sex pheromone under development for *Coleophora juncicolella* Stainton, 1851 (Coleophoridae). *Batrachedra confusella* was described recently (Berggren *et al.* 2022) by splitting *Batrachedra pinicolella* (Zeller, 1839). The distribution of these two species has not been precisely known so far. Both species have been recorded in the Czech Republic (Šumpich *et al.* 2023), where *Batrachedra confusella* was found in lower altitudes than *Batrachedra pinicolella*; the latter species inhabited *Picea abies* (L.) H. Karst. (Pinaceae) forests. Proposed Hungarian name: "fenyő-lándzsásmoly".

*Distribution* – The species has been reported from Armenia, Austria, Belgium, Czech Republic, Denmark, Finland (except Åland Islands), Germany, France (European territory excluding Corsica), Great Britain (England, Scotland, Wales, excluding Northern Ireland), Hungary (present paper), Italy (mainland and small islands near the mainland), Norway (except Svalbard and Jan Mayen), Poland, and Sweden (Larysz 2022, Nel *et al.* 2022, Stark 2022, Šumpich *et al.* 2023, Rennwald & Rodeland 2023*a*).

*Bionomy* – Host plants: *Pinus sylvestris* (L.), *Pinus brutia* Ten. and other *Pinus* spp., as well as *Larix decidua* Mill. (Pinaceae). The larva mines in the pine-needles (Berggren *et al.* 2022).

*Identification* – Wingspan: 10–12 mm. The fringe of the dorsum is monochromatic dark in *Batrachedra confusella* while only the distal third of the fringe (close to tornus) is dark in *Batrachedra pinicolella*. Genitalia dissection is often needed for identification. In the male genitalia the valva of *Batrachedra pinicolella* is more elongated and the dorsal edge of uncus is rougher with shorter setae than in *Batrachedra confusella*. The cornutus is narrow in *Batrachedra*

*pinicolella* while it is stronger and more conspicuous in *Batrachedra confusella*. The distal part of gnathos is broader in *Batrachedra pinicolella* than in *Batrachedra confusella*. In the female genitalia the signum is shorter and the sclerotised part of ductus bursae is narrower and straighter in *Batrachedra pinicolella* than in *Batrachedra confusella* (Berggren *et al.* 2022).




**Figs 1–2.** *Batrachedra confusella* Berggren, Aarvik, Huemer, Lee et Mutanen, 2022, 1 = adult, 2 = male genitalia, scale bar = 0.1 mm (drawing by Csaba Szabóky, photo by Ignác Richter)

Gelechiidae

*Dichomeris acuminatus* (Staudinger, 1876)
(Fig. 3)

*Material examined* – Hungary: one male, Pest County, Érd, Avar street 20, 21.X.2024, at light, leg. A. Pál. The voucher specimen is deposited in the first author's private collection.

*Remarks* – First record from Hungary. The voucher specimen was attracted to a 160 W HMLI bulb illuminating a white wall, established for long-term monitoring by Attila Pál. Proposed Hungarian name: "dárdahere-sarlósmoly".

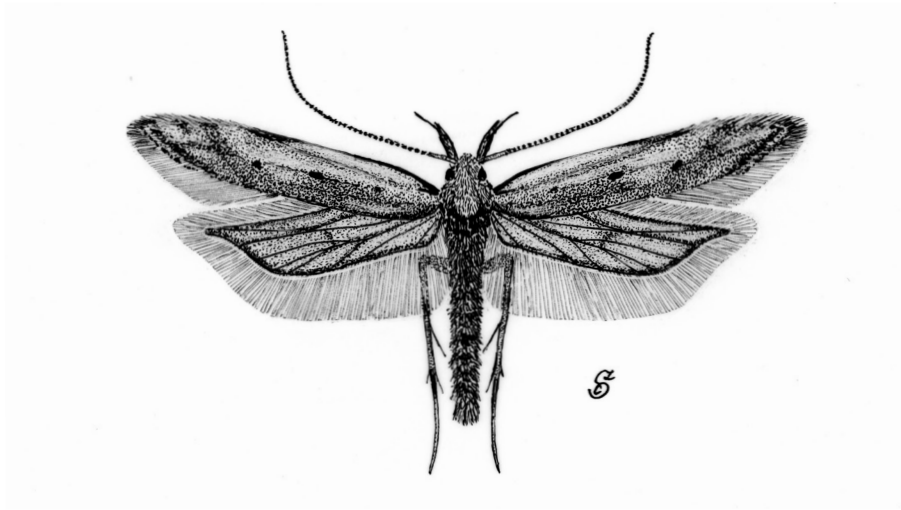


**Fig. 3.** *Dichomeris acuminatus* (Staudinger, 1876) (drawing by Csaba Szabóky)

*Distribution* – *Dichomeris acuminatus* is native in the Mediterranean area. The species has been reported from Albania, Croatia, Cyprus, France (mainland, Corsica), Great Britain (England, Scotland, Wales, excluding Northern Ireland), Greece (mainland, islands near the mainland, Dodecanese Islands, Crete), Hungary (present paper), Italy (mainland and small islands near the mainland, Sardinia, Sicily), Madeira (including Ilhas Selvagens), Malta, Portugal (mainland, Madeira), and Spain (mainland, Balearic Islands, Canary Islands) (Šumpich 2013, Parsons & Honey 2017, Rennwald & Rodeland 2023*b*).

*Bionomy* – Constant (1893) gave the first information on the larva and its bionomy. Host plant: *Dorycnium rectum* (L.) Ser. (= *Lotus rectus* L.) (Fabaceae). The moth was recorded as pest on *Medicago sativa* L. (Fabaceae) in Valencia, Murcia and Almería in Spain (Agenjo 1952). Larvae were found in September in the inflorescence of *Dorycnium rectum* in Spain (Huertas Dionisio 2006).

Adults emerged also in September. Potential host plants in Hungary can be *Dorycnium herbaceum* Vill., *Dorycnium germanicum* (Gremli) Rikli, and *Medicago sativa* (all Fabaceae).

*Identification* – Wingspan: 12–14 mm. *Dichomeris acuminatus* can be distinguished by its wing pattern. The forewings are strongly pointed, brown-yellow, with four black spots and darker outer edge. The second segment of labial palp is very long and fairly thick. The body is grey, while the pointed terminal segment yellowish. The yellow-grey hairs on the head are directed from bottom to top (Staudinger 1876).

## Gracillariidae

### *Caloptilia jurateae* Bengtsson, 2010
(Figs 4–5)

*Material examined* – Hungary: one female, Budapest, Soroksár Botanical garden, 125 W HgL, 14.V.2006, leg. Cs. Szabóky; one female, Békés County, Gyula, Városerdő, 4.IV.2012, leg. Cs. Szabóky; one female, Győr-Moson-Sopron County, Sopron, Fáberrét, 125 W HgL, 5.IV.2018, leg. Cs. Szabóky; one female, Komárom-Esztergom County, Esztergom, Sípoló-hegy, 125 W HgL, 28.VIII.2018, leg. Cs. Szabóky; one female, Fejér County, Velence, Ország street 23, "Jermy-type" light trap, 125 W HgL, 22.VIII.2024, leg. A. Takács. The voucher specimens are deposited in the first author's private collection, except the one specimen from Velence which is deposited in the HNHM.

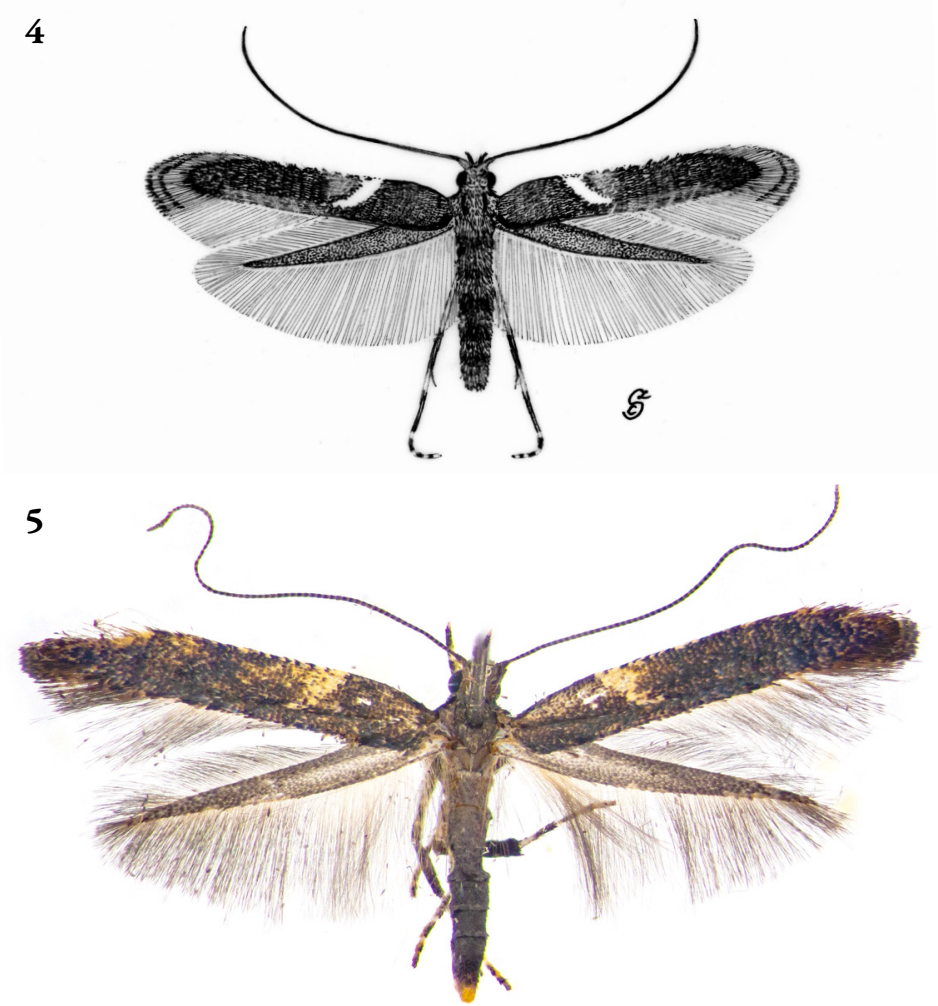
*Remarks* – First record from Hungary. Proposed Hungarian name: "koraijuhar-keskenymoly".

*Distribution* – The species has been reported from the Czech Republic, Estonia, Finland (except Åland Islands), Germany, Hungary (present paper), Latvia, Lithuania, Norway (except Spitsbergen and Jan Mayen), Poland, Russia (European part up to Manych Lowland), Sweden, and Switzerland (Rennwald & Rodeland 2023*c*).

*Bionomy* – Larva in stage L1 prepares serpentine mine in the leaf, consuming the epidermis. It abandons the mine in stage L2, rolls the apical, ca. 2 cm long section of the leaf and uses this tunnel as a shelter and food source. The larva prepares a new tunnel from a new leaf after each moult, being gradually larger as the larva grows. Larval stages are found in June and July, adults overwinter (Bengtsson 2010).

*Identification* –Wingspan: 10–13 mm. Ground colour of head and forewing similar, from light to dark brown. Transverse fascia on forewing is whitish or yellowish, its proximal edge is always sharp, distal edge sometimes blurred. Costa with usually ten pale dots, separated by dark (i.e., brown or black) scales. *Caloptilia semifascia* (Haworth, 1828) can be similar, but this latter species has

light patches on its forewing, especially at the dorsum, which are absent from *Caloptilia jurateae*. The transverse fascia of *Caloptilia semifascia* is broader than that of *Caloptilia jurateae*, at least as broad as long. *Caloptilia jurateae* has been only found on *Acer platanoides* (L.) (Sapindaceae), while *Caloptilia semifascia* feeds generally on *Acer campestre* (L.), only occasionally on *Acer platanoides* (Bengtsson 2010).




**Figs 4–5.** *Caloptilia jurateae* Bengtsson, 2010, 4 = drawing of female, 5 = dorsal habitus, scale bar = 6 mm (drawing by Csaba Szabóky, photo by Attila Takács)

*Dialectica scalariella* (Zeller, 1850)
(Figs 6–11)

*Material examined* – Hungary: one male, Fejér County, Lovasberény, Szőlőhegy, "Jermy-type" light trap, 125 W HgL, 5.VIII.2024, leg. A. Takács; three males, same locality, ex larva, *Echium vulgare* (L.) (Boraginaceae), 8.VIII.2024, leg. A. Takács; one female, Zala County, Keszthely, garden of the Hunting Museum, ex larva, *Echium vulgare*, 12.VIII.2024, leg. A. Takács; four females, two males, Fejér County, Velence, Ország street 23, "Jermy-type" light trap, 125 W HgL, 7.IX.2024, leg. A. Takács; two females, same locality and method, 10.IX.2024, leg. A. Takács; one male, Budapest, 17th district, Jászivány street, ex larva, *Anchusa officinalis* (L.) (Boraginaceae), 14.X.2024, leg. A. Takács; one male, Fejér County, Velence, Nadapi street, "Jermy-type" light trap, 125 W HgL, 23.IX.2024, leg. A. Takács; fifteen males, same locality, ex larva, *Echium vulgare*, 25.IX.2024, leg. A. Takács; one male, Pest County, Leányfalu, Gyöngyvirág street 16, 26.IX.2024, at light, 125 W, HgL, leg. Cs. Szabóky; one female, Győr-Moson-Sopron County, Fenyőfő, 5.X.2024, light trap, 125 W HgL, leg. Cs. Szabóky; two males, three females, same locality, ex larva, *Echium vulgare* 25.X.2024, leg. Cs. Szabóky & A. Takács; four females, Pest County, Budaörs, Odvas-hegy, 10.X.2024, leg. Cs. Szabóky & A. Takács; three males, three females, same locality, ex larva, *Echium italicum* (L.) (Boraginaceae), 25.X.2024, leg. Cs. Szabóky & A. Takács; one female, Pest County, railway station "Gödöllő Állami Telepek", ex larva, *Echium vulgare*, 23.X.2024, leg. A. Takács; one male, Fejér County, Kőszárhegy, "Jermy type" light trap, 125 W HgL, 27.X.2024, leg. A. Takács; two males, Heves County, Gyöngyös, railway station, ex larva, *Echium vulgare*, 13.XI.2024, leg. A. Takács; five females, Heves County, Mátra, Sár-hegy, Szent Anna-tó, 25.X.2024, ex larva, *Echium russicum* (L.) (Boraginaceae), leg. Cs. Szabóky; three males, Pest County, Pilisborosjenő, Teve-szikla, ex larva, *Echium vulgare*, 25.X.2024, leg. Cs. Szabóky; three males, Pest County, Börzsöny Mts, Törökmező, ex pupa, *Echium vulgare*, 26.XI.2024, leg. Cs. Szabóky. Voucher specimens are deposited in the first author's private collection (30 specimens), in last author's private collection (10 specimens), and in the HNHM (20 specimens).

*Remarks* – First record from Hungary. Two species of *Dialectica* Walsingham, 1897 have been known in Hungary: *Dialectica imparialella* (Zeller, 1847) feeding on *Symphytum* spp., *Pulmonaria* spp., and *Lithospermum* spp. (all Boraginaceae) (Laštůvka *et al.* 2018), and *Dialectica soffneri* (Gregor et Povolny, 1965) with unknown host plant (Pastorális & Buschmann 2018). Proposed Hungarian name: "kígyószisz-hólyagosmoly".

*Distribution* – The species has been reported from Australia, Austria, Azores, Belgium, Bulgaria, Canary Islands, Crimea, Croatia, Dodecanese Islands (Greece), France (mainland, Corsica), Germany, Greece (mainland, islands near the mainland, Dodecanese Islands, Crete), Great Britain (England, Scotland, Wales, excluding Northern Ireland), Hungary (present paper), Iran, Italy

(mainland and small islands near the mainland, Sardinia, Sicily), Malta, Monaco, New Zealand, Portugal (mainland, Madeira), Spain (mainland, Balearic Islands, Canary Islands), Russia (between the Manych lowland and the Caucasus), Slovenia, Switzerland, Turkey (European part) (Rennwald & Rodeland 2023*d*).

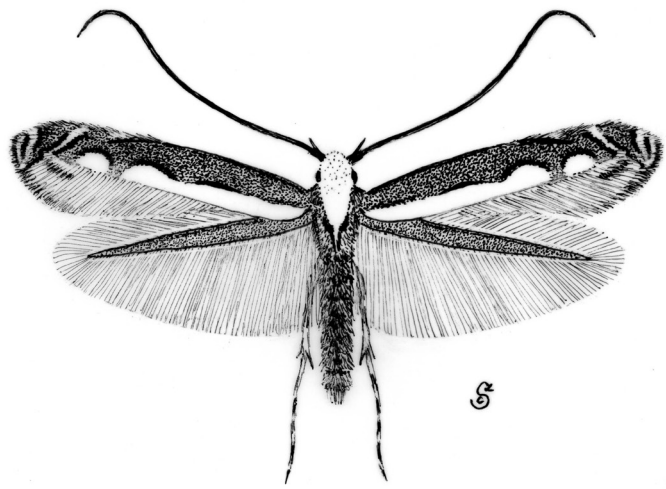


**Fig 6.** *Dialectica scalariella* (Zeller, 1850) female (drawing by Csaba Szabóky)

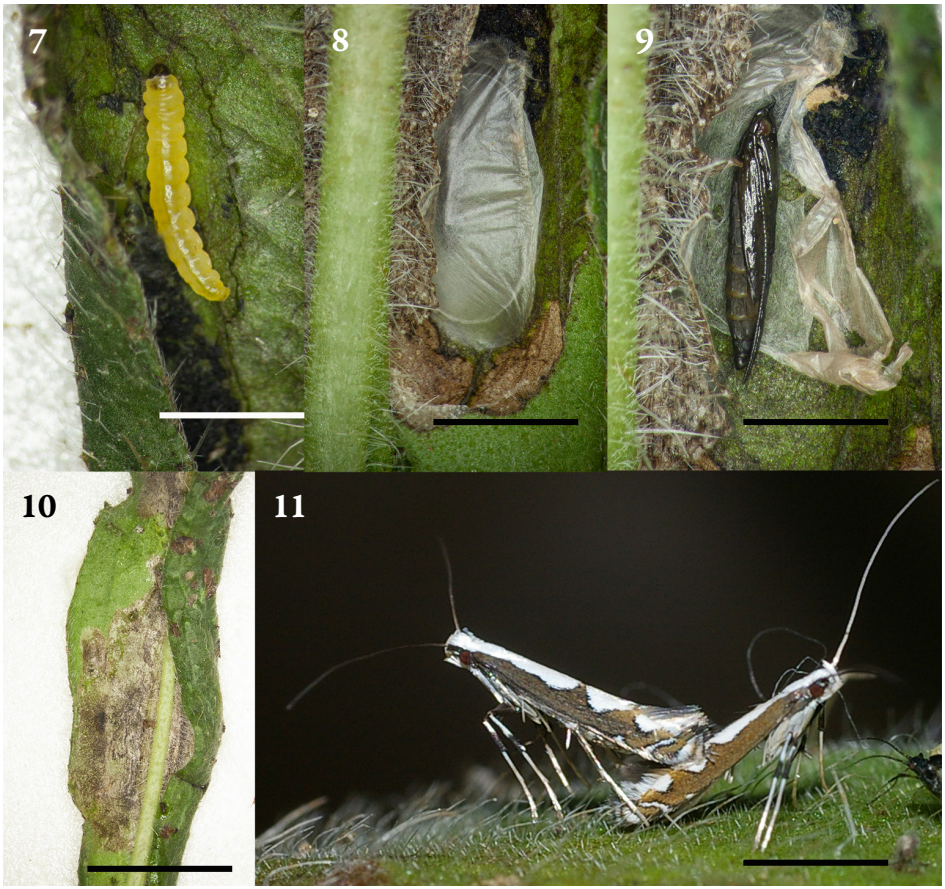
*Bionomy* – The newly hatched larva prepares a long, sinuous mine on the underside of the leaf. After the first moult it prepares a tentiform mine by creasing the leaf edge, which makes the leaf wrinkled with aging. Usually 2–4 larvae share the same mine. According to Hering (1957) the pupa lies freely in the mine but our studies showed that the pupa is surrounded by a white cocoon (Fig. 8). Host plants: *Echium vulgare*, *Echium italicum*, *Echium russicum, Echium* spp., *Anchusa* spp., C*ynoglossum* spp., *Myosotidium hortensia* (Decne.) Baill., *Myosotis* spp., *Borago* spp. (Skala 1937), *Symphytum officinale* (L.) (Wapshere & Kirk 1977, Rennwald & Rodeland 2023*d*) (all Boraginaceae). *Dialectica scalariella* has multiple generations.

*Identification* – This species can readily be distinguished from the other two *Dialectica* species by wing pattern (Figs 6, 11). Characteristics of the three species are given below.

*Dialectica scalariella:* Wingspan: 8–10 mm. The antenna is longer than forewing. The head is white. The costal half of forewing is dark brown, remaining area is white, apical area with white streaks; the border of the brown and white areas is straight in proximal half of the wing, sinuous in distal half (Zeller 1850, Agassiz 2005).

*Dialectica soffneri:* Wingspan: 6–7 mm. The antenna is greyish-brown and almost uniformly as long as the forewing. The head is white. The ground colour of the forewing is light golden brown with prominent, pure silvery white spots, bordered by thin, brown to black scales (Gregor & Povolný 1965).

*Dialectica imperialella (*Zeller, 1847): Wingspan: 8–9 mm. The antenna is almost uniformly grayish-brown and longer than the forewing. The head and thorax are golden, like the forewing. The forewing possesses a silvery cross-line not far from the base; towards the tip there are four silvery wedges and a narrow cross-line in front of the tip. The markings are surrounded by dark borders. Hindwings are grey; the fringes are three times longer than the width of the wings (Zeller 1847).




**Figs 7–11.** *Dialectica scalariella* (Zeller, 1850), 7 = Larva in *Echium vulgare*, scale bar = 5 mm, 8 = cocoon, scale bar = 4 mm, 9 = pupa, scale bar = 4 mm, 10 = leaf mine in *Echium vulgare*, scale bar = 6 mm, 11 = copula, scale bar = 5 mm
(photos by Csaba Szabóky (Fig. 12) and by Attila Takács (Figs 7–11))

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