

Revision of the Hungarian *Euchromius* Guenée, 1845 species (Lepidoptera: Crambidae)

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FAZEKAS, I.: *Revision of the Hungarian Euchromius Guenée, 1845 species (Lepidoptera: Crambidae).*

Abstract: Hungarian *Euchromius* are revised and list of localities is provided. Structure of genitalia and morphological characteristics of wings are illustrated by figures. The habitats and Hungarian distribution of the species have been analysed, the latter shown on UTM-grid maps. The study is completed with references on the Hungarian distribution of the species. With 8 figures.

Keywords: Lepidoptera, Crambidae, *Euchromius*, biology, habitat, distribution, Hungary.

Introduction

The world fauna of genus *Euchromius* is probably the best known among Crambinae since revisions after BLESZYNSZKI (1965), CAPPS (1966) and SCHOUTEN (1988, 1992). Two species of *Euchromius* are known to occur in Hungary (FAZEKAS 1996, PASTORÁLIS 2010) and 12 species in Europe (SLAMKA 2008). Knowledge of the biology and geographical range is limited in Hungary. GOZMÁNY (1963) redescribed the diagnostic characters of the Hungarian species, and gave an account of what was known of their biology and distribution.

According to SZENT-IVÁNY and UHRIK-MÉSZÁROS (1942), *Euchromius superbullus* (Zeller, 1849) is a problematical species in Hungary: „In der Sammlung des Naturhistorischen Museums befinden sich 2 Exemplar mit der Fundortsetikette: “Hung. coll. REBEL“ und 1 Exemplar mit dem Fundortszettel: “Hung. ANKER, coll. Rebel.“ GOZMÁNY (1963) showed later that no specimen of *Euchromius superbullus* is known from the actual territory of Hungary.

In the last 50 years, *Euchromius* species have attracted little attention from Hungary researchers; many records in the Hungarian literature are doubtful and the identification of the species has been uncertain.

A summary of the Hungarian distribution and phenology is given, with detailed information about flight period, biology including food plants and habitat including the altitudinal range. This study includes original reference to all available names.

Material and methods

More than 59 collections containing specimens of Hungarian *Euchromius* species have been examined, about 14 dissected and their genitalia analyzed. Phenology is given mainly on the basis of examined collection data, and data from references are used only as a supplement. Larva foodplants and habitats are the author's own original data, personal communications and taken from the references. Original data from electronic database of Excel is in the Biological Department of Regiograf Institute (H-Komló).

Treatment of the species of *Euchromius* in Hungary

Euchromius Guenée, 1845

Euchromius Guenée, 1845; Annls. Soc. ent. Fr. (2) 3: 324.

Higher classification: Pyraloidea: Crambidae: Crambinae

Type-species: *Tinea bella* Hübner, 1796; Samml. eur. Schmett. 8: 29, pl. 9, fig. 60.

Synonyms: *Eromene* Hübner, [1825]; *Araxes* Stephens, 1834; *Ommatopteryx* Kirby, 1897; *Pseudoancylolomia* Ahmad, Zaidi & Kamaluddin, 1982

Diagnosis: Wingspan 13–27 mm. Forewing with one or two yellowish medial fascia and five to nine black terminal dots. M1 of the hindwing is located in the upper angle of the open cell. The base of M2 and M3 of the hindwing has no basal pointing stalk.

Male genitalia: The dorsal insertion of the ductus ejaculatorius is subterminal. The gnathos is, in principle, armed with dorsal thorns. Tergite VIII of the male has a sclerotized pattern.

Female genitalia: Ductus bursae short or long, bursa copulatrix small or large, roundish or elongated, without, with one, two or three signa.

Biology and habitat: The larvae of several species have been reared from dead leaves near the base of plants, accidentally larvae attack living plants and flower-heads. Transportation of pupae with plant-remains seems a likely event. The dead leaves of mainly Asteraceae and one species of Dipsacaceae are recorded as food-items.

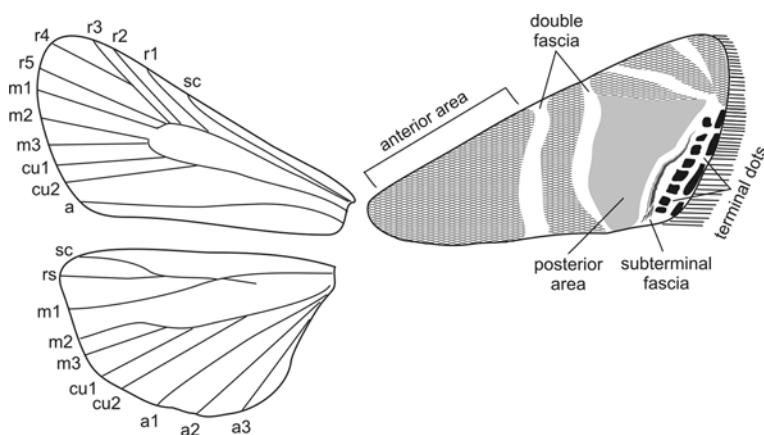


Fig. 1: Generalized *Euchromius* showing wing venation as seen from below and wing pattern from above



Fig. 2: Adult of *Euchromius ocellus* (Haworth, 1811)

The adults are found in various habitats, but most of them prefer dry to fresh and warm areas. Most species have been caught at light but several have been taken when flying at dusk. Many species are found from sea-level up to more than 1000-1200 m altitude. *Euchromius ocellus* is recorded from the highest altitude, 4250 m in Central Asian.

Geographic range: Species of *Euchromius* are present on all continents and on many oceanic islands. No species are found on the islands of South-East Asia. Distribution: primarily in the Palearctic region, Africa, the near and Middle East, North America and South America and Australia. They are common at high altitudes where grasslands occur.



Fig. 3: Adult of *Euchromius bellus* (Hübner, 1796)

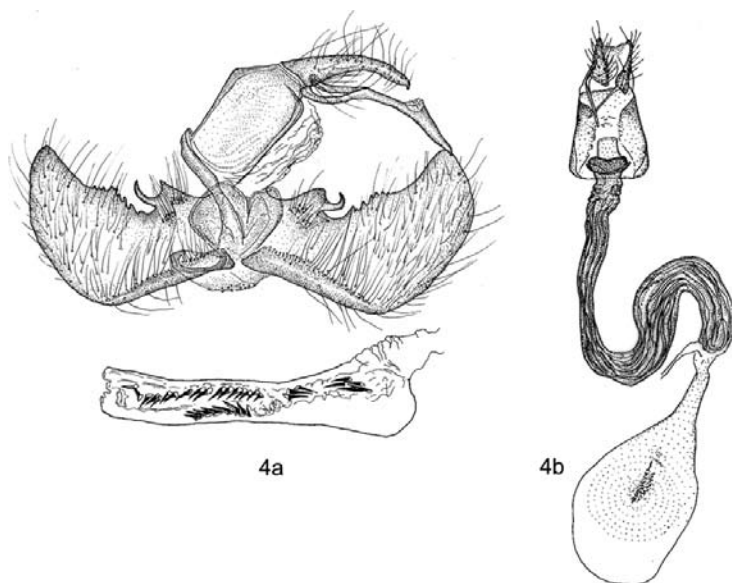


Fig. 4: Male (a) and female (b) genitalia of *Euchromius ocellus* (Haworth, 1811)

1. *Euchromius ocellus* (Haworth, 1811)

Palparia ocella Haworth, 1811; Lep. Brit.: 486. Locus typicus: "England".

Synonym: *Crambus cyrilli* Costa, 1829; *Phycis funiculella* Treitschke, 1832; *Eromene texana* Robinson, 1870; *Eromene gigantea* Turati, 1924; *Pseudoancylolomia qadrii* Ahmad, Zaidi & Kamaluddin, 1982.

References: Bleszynski 1965; Fazekas 1996; Goater 1986; Gozmány 1963; Palm 1986; Petersen et al. 1973; Schouten 1992; Slamka 2008, 2010.

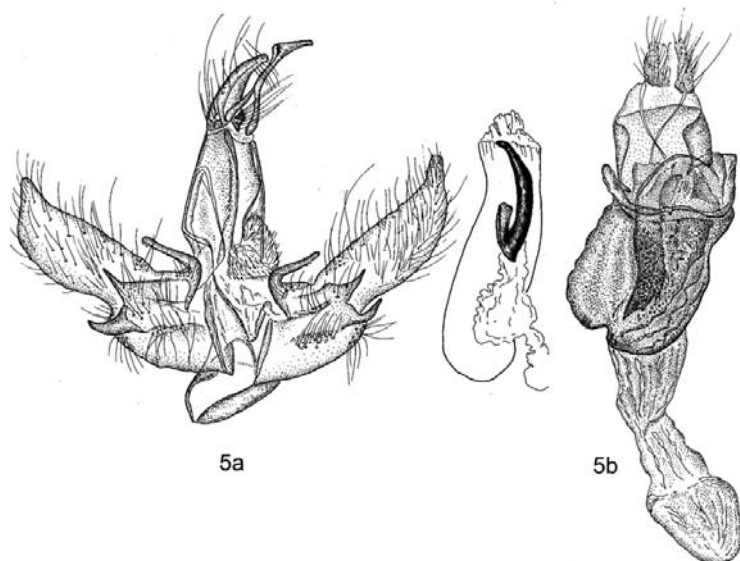


Fig. 5: Male (a) and female (b) genitalia of *Euchromius bellus* (Hübner, 1796)

Diagnosis: wingspan 13-26 mm. Antenna of male ciliate. Forewing with double yellow medial fascia. Tegulae evenly mottled; no dark patch in the middle.

Similar species: *Euchromius anapiellus* (Zeller, 1847).

Male genitalia: cucullus very broad, the dorsal edge finely dentate; in basal half in combination with processus basalis large, broad, with strong dorsally bent spine, arising from middle of blade.

Female genitalia: hook-like projections lateral of ostium absent. Ductus bursae three times length of bursa copulatrix. Edges of tergite VIII not connected.

Biology and habitat in Hungary: univoltine, flight period from August to middle October. According to GOZMÁNY (1963) the imago probably hibernates in Hungary, but this is so far unconfirmed. Detritophagous larva lives on various dried vegetal detritus from July to early August. CAPPS (1966) states that it feeds on corn and milo maize roots in association with stored produce, but this is doubtless accidental. The moth flies in xerothermous habitats, preferring steppes and colline areas. Very local and rare in the mountains at medium altitude. Typical habitats are closed rock grasslands; rock steppes and slope steppes; sometimes in secondary and degraded marshes and grasslands and in semi natural, often secondary woodland-grassland mosaics. From 75 m up to 400 m.

Known distribution in Hungary: – BUSCHMANN 2004: Jászberény; – FAZEKAS 1988, 2007: Csopak, Komló, Pécs; – GOZMÁNY 1965: Pécel, Szőreg; – FAZEKAS & SCHREURS 2010: Dombóvár-Gunaras; – GOZMÁNY & SZABÓKY 1986: Baja, Bugac, Hódmezővásárhely; – PASTORÁLIS & SZEŐKE 2011: Csákvár (Szőlőkő); – SZABÓKY 1982, 1999: Csopak, Jósavő; – in coll. Szeőke K., Székesfehérvár (in litt.): Nadap, Szentgyörgyvár, Szőlőkő (Vértes). – collection of Hungarian Natural History Museum, Budapest: Baj, Pécel (the first Hungarian data: “1909.VIII.31., leg. Ulbrich”), Szeged-Szőreg, Hódmezővásárhely.

Distribution within Europe: Austria, Azores, Balearic Islands, Belgium, Bohemia, Bosnia and Herzegovina, British Isles, Bulgaria, Canary Islands, Corsica, Croatia, Crete, Denmark, Estonia, France, Germany, Gibraltar, Greece, Hungary, Italy, Latvia, Lithuania, Macedonia, Madeira, Malta, Netherlands, Norway, Poland, Portugal, Romania, South and Central Russia, Sardinia, Sicily, Slovakia, Sweden, Switzerland, Ukraine. In the north, only an uncommon migrant.

Geographic range: Widespread in Africa, in Middle East, Pakistan, India, Nepal, Burma, Hawaii and from North America to South America. Known in Europe from Mediterranean region to Scotland, Scandinavia and Ural Mountains. *E. ocellus* has been found in various habitats, such as cultivated areas, Macchia in the Mediterranean, dry savannah in Africa, salt-steppe in the Middle East and salt-areas in North America. It flies at sea level but also at high altitudes up to 3400 m in the La Sal Mountains in Utah (USA).

Notes: *E. ocellus* is a widespread tropical, subtropical and holomediterranean species which is an immigrant to Hungary. According to SCHOUTEN (1992) the species seems to be a migratory taxon which can sometimes establish temporary populations in localities far outside its main distribution area. There are habitats like this in the mountains of medium height in Hungary and at lower altitudes: Villány Hills, Mecsek, Bakony, Vértes, Mátra and Bükk Mountains.

2. *Euchromius bellus* (Hübner, 1796)

Tinea bella Hübner, 1796; Samml. eur. Schmett. 8: 29, pl. 9, fig. 60. Locus typicus: “Ungarn” [Syntypes: lost].

Synonyms: *Eromene bellalis* Hübner, [1825]; *Ommatopteryx bellus* (Hübner, 1796); *Ommatopteryx bellus* var. *minorella* Chrétien: in Lhomme (1935–1946).

References: BLESZYNSZKI 1965; FAZEKAS 1996; GOATER 1986; GOZMÁNY 1963; PALM 1986; PETERSEN et al. 1973; SCHOUTEN 1992; SLAMKA 2008, 2010.

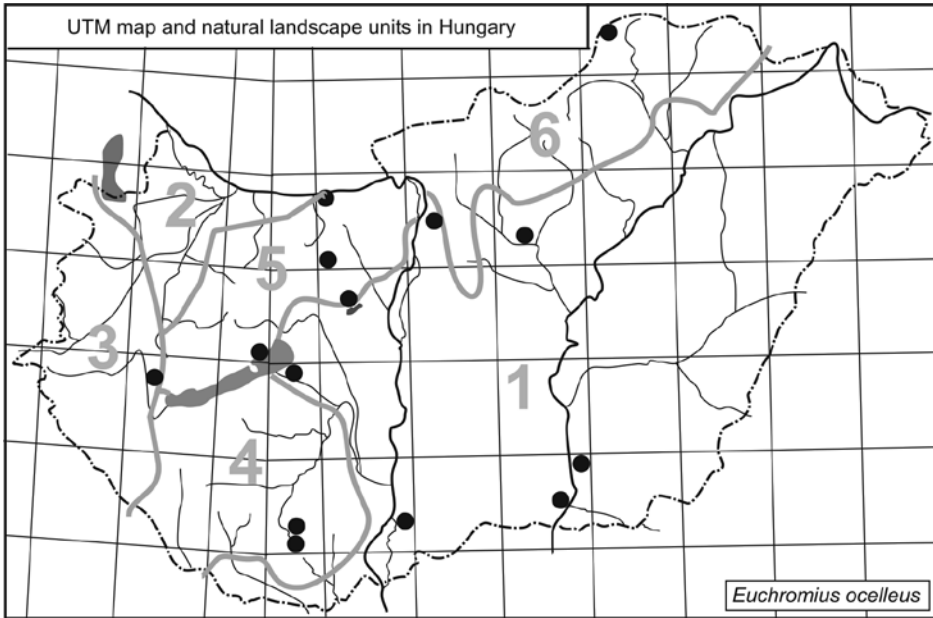


Fig. 6: Known distribution of *Euchromius ocellus* (Haworth, 1811) in Hungary: 1) Great Hungarian Plain; 2) Little Plain; 3) West Hungarian Borderland; 4) Transdanubian Hills; 5) Transdanubian Mountains, 6) North Hungarian Mountains

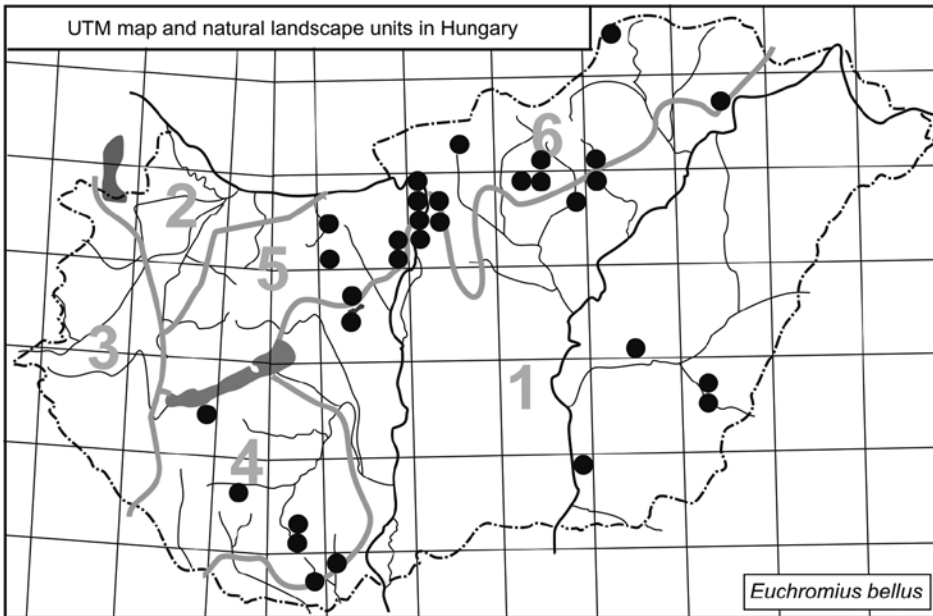


Fig. 7: Known distribution of *Euchromius bellus* (Hübner, 1796) in Hungary

Diagnosis: wingspan 14–19 mm. Frons with or without a small point, sides of labial palp creamy white at base. Tegulae with a dark patch in the middle. Forewing ground colour creamy white, densely suffused with ochreous to dark brown scales, anterior area yellow to brown-grey. Medial fascia double, arched or straight, inner fascia reduced or not, area adjacent to the nine or eight black terminal dots white.

Similar species: Most like *Euchromius anapiellus* (Zeller, 1847) and *E. vincuellus* (Zeller, 1847).

Male genitalia: processus of sacculus short, valvae with two dorsal processes, the processus inferior small. Aedeagus with large hook-shaped cornutus.

Female genitalia: posterior part of ductus bursae very broad; bursa copulatrix elongated and very lightly sclerotized and signa absent.

Biology and habitat in Hungary: The single generation flies from June to the end of August. According to literature, the larva lives on dry leaves of *Hieracium*, *Picris* and *Scabiosa*, also recorded to attack the roots and flower heads; August to June. So far, the larva has not been found in Hungary. The moth flies in a variety of habitats: colline and montane hay meadows, acid grasslands and heaths; closed rock grasslands; rock steppes; slope steppes; acid open rock grasslands; white oak scrub woodlands and loess steppe oak woodlands. Known habitats are from 100 m up to 690 m.

Known distribution in Hungary: – BUSCHMANN 2004: Mátra (Sár-hegy), – Fazekas 1986, 1989, 1991, 1993, 2002, 2007: Eger, Fonyód, Gyöngyös, Kaposvár, Komló (Kossuthakna, Zobákpuszt), Maklár, Mátraháza, Nagyharsány (Szársomyló-hegy), Pécs (Tubes-Misina-Tettye; – after GOZMÁNY (1965): “everywhere” (there is not accurate data); – GOZMÁNY & SZABÓKY 1986: Ócsa (Nagy-erdő); – PETRICH 2001: Nadap (Csúcsos-hegy), Pákozd (Mészeg-hegy), Sukoró (Csúcsos-hegy); – RESKOVITS 1963: Eger, Maklár; – SZABÓKY 1999: Jósvalfő; – SZENT-IVÁNY & UHRIK-MÉSZÁROS 1942: Budafok, Budapest, Eger, Pécel, Pomáz, Újpest; – SZÖCS 1975: Gyöngyös, Mátraháza; – collection of Hungarian Natural History Museum, Budapest: Bánhida, Békásmegyer, Bodrogszegi, Budafok, Budakeszi, Budaörs, Dinnyés, Eger, Eger-Maklár, Érd, Fót, Fót-Csomád, Gerla, Hódmezővásárhely, Kaposvár, Gyöngyös, Gyöngyös-Sár-hegy, Kompolt, Mátrafüred-Pilosvörösmart, Mátraháza, Mohora, Ócsa-Turjáni-erdő, Pécs, Pomáz, Szederkény, Szentendre, Tahi, Tarhos; – in coll Lévai Sz., Mezőtúr (in litt.): Mezőtúr-Kertváros; – in coll. Szeőke K., Székesfehérvár (in litt.): Budapest (Sas-hegy), Csákvár (Haraszt-hegy), Sukoró, Újpest.

Distribution within Europe: Balearic Islands, Bosnia and Herzegovina (yet to be confirmed), Bulgaria, Crete, Croatia, France, Georgia, Greece, Hungary, Italy, Macedonia, Poland (doubtful), Romania, Russia South, Sardinia, Sicily, Slovakia, Spain and Ukraine (yet to be confirmed).

Geographic range: Distribution outside Europe; Morocco, Israel, Palestine, Lebanon, Jordan, Syria, Iran, Iraq, Tadzhikistan. Known in Turkey up to 2200 m and in Iran up to 2000 m. The adults fly in very hot and dry localities, with sparse herbaceous vegetation with very few grasses.

Notes: According to SLAMKA (2010) the species is more frequent in Hungary, but this not so. *E. bellus* rare and mostly very local in Hungary, and is unknown from many areas. According to our knowledge the strongest Hungarian populations live in Mátra Mountains near Gyöngyös town (Sár Hills). The habitat preferences of the local population: slope steppes and subcontinental peri-Pannonic scrub. This latter vegetation is low deciduous scrub with Continental and sub-Mediterranean affinities of the Pannonic basin and neighbouring regions including the eastern Alpine periphery, the southern periphery of the Northwestern Carpathians, the Transylvanian plateau and the adjacent foothills and valleys of the Eastern and Southern Carpathians, the southern periphery of the



Fig. 8: Habitat of *Euchromius bellus* (Hübner, 1796) at the Mecsek Mountains near Pécs town (Tettye)

Pannonic basin, with radiations to the lower Danubian plain, to the Moravian plateau, to the Dobrogea and to the hills and valleys of the northern Balkan peninsula. The species occurs on both calcareous and siliceous substrates forming mosaic-like vegetation with steppe grassland and forest-steppe.

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References

- BLESZYNSKI, S. 1965: Crambinae. In: Amsel, H. G., Reisser, H. & Gregor, F.: *Microlepidoptera Palaearctica*. 1 (1–2). – Georg Fromme & Co., Wien, Pp. i–l, 1–553, pls. 1–133.
- BUSCHMANN, F. 2004: A Mátra Múzeum molylepke-gyűjteménye III. Choreutidae – Pyralidae. – *Folia Historico Naturalia Matraensis* 28: 243–272.
- CAPPS, H. W., 1966: Review of new world moths of genus *Euchromius* Guenée with descriptions of two new species (Lepidoptera: Crambidae). – *Proceedings of the United States National Museum* 119: 1–10.

- FAZEKAS, I. 1986: A Nattán-gyűjtemény Crambinae és Schenobiinae fajainak revíziója. [Revision of the species from the butterfly-families Crambinae and Schenobiinae from the Nattán's collection]. – *Folia Comloensis* 2: 129–142, Ábrák – Abbildungen 1–6.
- FAZEKAS, I. 1988: Angaben zur Pyraloidea-Fauna des Bakony-Gebirges (Ungarn) II. Crambinae (Microlepidoptera). – *Folia Musei Historico-naturalis Bakonyiensis* 7: 117–132.
- FAZEKAS, I. 1989: A Dél-Dunántúl Crambinae fajai és elterjedésük (Microlepidoptera). [Die Crambinae-Arten und ihre verbreitung in Süd-Transdanubien (Microlepidoptera)]. – *Állattani Közlemények* 75: 43–48.
- FAZEKAS, I. 1991: A Mátra és a Bükk-hegység Crambinae faunája (Microlepidoptera: Pyralidae). [Crambinae fauna of the Mátra and the Bükk Mountains, North-Hungary]. – *Folia Historico Naturalia Matraensis* 16: 45–94.
- FAZEKAS, I. 1993: A Mecseki szénbányák meddőhányóinak biológiai vizsgálata, II. Komló Pyralidae és Pterophoridae faunája (Microlepidoptera). [The biological examination of the Spoil Banks of the Coal Mines in Mecsek Mts. No. 2. Pyralidae and Pterophoridae]. – *Folia Comloensis* 5: 5–27.
- FAZEKAS, I. 1996: Systematic catalogue of the Pyraloidea, Pterophoridae and Zygaenoidea of Hungary (Lepidoptera). – *Folia Comloensis*, Suppl.: 1–34.
- FAZEKAS, I. 2002: Catalogue of Microlepidoptera fauna from Baranya county (South-Hungary). – *Folia Comloensis* 11: 5–76.
- FAZEKAS, I. 2007: Microlepidoptera Pannoniae meridionalis, VI. Catalogue of Microlepidoptera from Mecsek Mountains, SW Hungary (Lepidoptera). – *Acta Naturalia Pannonica* 2: 9–66.
- FAZEKAS, I. & SCHREURS, A. 2010: Microlepidoptera Pannoniae meridionalis, VIII. Data to knowledge of micro-mots from Dombóvár (SW Hungary) (Lepidoptera). – *Natura Somogyiensis* 17: 273–292.
- GOZMÁNY, L. 1963: Molylepkék VI. Microlepidoptera VI. – *Fauna Hungariae* XVI., 7: 289 pp.
- GOZMÁNY, L. & SZABÓKY, CS. 1986: Microlepidoptera. In: Mahunka, S.: The Fauna of the Kiskunság National Park, 247–299 pp.
- GOATER, B. 1986: British Pyralid Moths. A guide to their identification. – Harley Books, Colchester, 177 pp., 8 color plates.
- PALM, E. 1986: Nordeuropas Pyralider. Danmarks Dyreliv, Bind 3. – *Fauna Bøger*, Kobenhavn, 287 pp. 8 Pl.
- PASTORÁLIS, G. 2010: A checklist of Microlepidoptera (Lepidoptera) occurred in the territory of Hungary (1.4). – *e-Acta Naturalia Pannonica* 1 (1): 89–170.
- PASTORÁLIS, G. & SZEÖKE, K. 2011: A Vértess hegység molylepke kutatásának eddigi eredményei. [The summary of the research results of micro-moths of Vértess Mountains] (Lepidoptera, Microlepidoptera). – *e-Acta Naturalia Pannonica* 2 (1): 53–100.
- PETERSEN, G., FRIESE, G. & RINNHOFFER, G. 1973: Beiträge zur Insektenfauna der DDR: Lepidoptera – Crambidae. – *Beiträge zur Entomologie*, Berlin 23 (1–4): 4–55.
- PETRICH, K. 2001: A velencei táj lepkevilága. – *Mezőgazdasági Szaktudás Kiadó*, Budapest, 305 pp.
- RESKOVITS, M. 1963: A Bükk-hegység lepkefaunája. [Die Lepidopteren-Fauna des Bükk-Gebirges]. – *Folia Entomologica Hungarica* 16: 1–62.
- SCHOUTEN, R. T. A. 1992: Revision of the genera *Euchromius* Guenée and *Miyakea* Marumo (Lepidoptera: Crambidae: Crambinae). – *Tijdschrift voor Entomologie* 135: 192–274.
- SLAMKA, F. 2008: Pyraloidea of Europe (Lepidoptera) Volume 2, Crambinae & Schenobiinae. – Bratislava, 223 pp.
- SLAMKA, F. 2010: Pyraloidea (Lepidoptera) of Central Europe. – Bratislava, 176 pp.
- SZABÓKY, CS. 1982: A Bakony molylepkéi. [Die Microlepidoptera des Bakony-Gebirges, Ungarn]. – *Resultationes investigationum rerum naturalium Montinum Bakony XV.*, 41 pp.
- SZABÓKY, CS. 1999: Microlepidoptera of the Aggtelek National Park. Microlepidoptera. In: Mahunka, S. & Zombori, L. (eds): The Fauna of the Aggtelek National Park. Magyar Természettudományi Múzeum, Budapest, pp. 395–442.
- SZENT-IVÁNY, J. & UHRİK-MÉSZÁROS, T. 1942: Die verbreitung der Pyraliden (Lepidopt.) im Karpatenbeckens. – *Annales Historico-naturalis Musei Nationalis Hungarici, Pars Zoologica*, 35: 105–196.
- SZÓCS, J. 1975: Molylepkék a Mátra és a Bükk hegységi fénycsapdákából. – *Folia Historico Naturalia Matraensis* 3: 81–109.

