

New findings of the case-bearing moths (genus *Coleophora* HÜBNER, 1822) from the Balkan Peninsula with description of two new species (Lepidoptera, Coleophoridae)

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Abstract. Two new moth species *Coleophora imathiensis* sp. nov. and *Coleophora epirusella* sp. nov. (Lepidoptera: Coleophoridae: Coleophora) have been found in Greece, and their description is given in this article. Moreover, the author presents results from three research expeditions conducted in 2017 in Macedonia. Altogether 16 new species of case-bearing moths (genus *Coleophora*) were found for Macedonia, and one species has been found as new for Europe. A female of *Coleophora vardarella* Richter, 2017 is described and depicted here for the first time.

Keywords. Lepidoptera, Coleophoridae, new records, description, *Coleophora epirusella* sp. nov., *Coleophora imathiensis* sp. nov., Macedonia, Greece.

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Introduction

The article consists of two parts. In its first part, the description of two new case-bearing moth species (*Coleophora imathiensis* sp. nov. and *Coleophora epirusella* sp. nov.) found in Greece is provided.

The second part summarizes the results of three research expeditions executed during the vegetation season of the year 2017 in Macedonia. Altogether 16 new species of *Coleophora* HÜBNER, 1822 have been recorded for Macedonia. A female of *Coleophora vardarella* Richter, 2017 is described and depicted for the first time.

Abbreviations. coll.= collection; CZ= Czech Republic; det.= determinator; GP= Genital Preparation; IgR= Ignác Richter; km= kilometre; mm= millimetre; leg.= collector; m a.s.l.= metres above sea level (altitude); MZMB= Moravské zemské muzeum Brno, NMPC= Národní muzeum Praha, NP= National Park; sp. nov. (species nova)= new species; W= west.

Description of new species

During the revision of moth collections of Aleš Laštůvka (CZ) and Jan Skyva (CZ), two new species collected in Greece were found. Full description of the mentioned species, enriched with photographs of the adults and of their genital preparates are provided.

Coleophora imathiensis sp. nov. (Figs 1–3)

Holotype: Greece, Imathia, Klidi, 24. 6. 1997, 1 male (♂), leg. Aleš Laštůvka, coll. MZMB, GP 22036 IgR | Paratypes: Greece, Imathia, Klidi, 24. 6. 1997, 1 male (♂), leg. Aleš Laštůvka, coll. Aleš Laštůvka, Greece, Imathia, Klidi, 24. 6. 1997, 1 male (♂), leg. Aleš Laštůvka, coll. Ignác Richter, GP 22349 IgR (Fig. 1).

Diagnosis. Medium size species, approximate wingspan about 15 mm. Habitually, as well as by the shape of the male genital apparatus resembles *Coleophora quadrifari-*

ella STAUDINGER, 1880. The main differences between the *C. quadrifariella* and this new species could be found on the genital apparatus: process on the caudo-ventral angle of sacculus is longer and narrower at its base. There is a difference in the shape and number of cornuti.

Description. Vertex and the forehead (frons) slightly greyish–white in colour, sub-ocular scales are yellow, upper parts of labial palpi white, lateral side yellow/ochreous–yellow, from the external side with narrow ochreous–yellow stripe, lined with white scales. The length of the second segment is slightly bigger than the diameter of the eye, third segment is of same colour as the second, but half of its length. Thorax is white, with three yellow stripes on dorsum (one central and two lateral). Tegulae white, with a silverish gloss. Antennae: monochromatic, shrinking towards distal end, flagomeres covered with small scales positioned next of each other, of ochreous–yellow colour.

Forewing: ground colour yellow, slightly ochreous towards apex. Costal stripe (fascia) is silver, and reaches till the 4/5 of the wing length. The next stripe begins at the medial part, and reaches apex. Third silver stripe begins in the middle of the wing base. From there, the stripe continues up to the half length of the wing, but does not reach its dorsal margin.

The fourth silver stripe extends from the base to the 2/5 of the wing length and forms the dorsal margin of the wing. Ciliae are of brown colour, darker than the basic wing colouration.

Hind wing has ochreous, ochreous–brown base colour. Along the subcostal vein, at the central part at the wing base and at the first 2/3 of its length) of the wing dark brown,

Legs are white from inner side, from outer side ochreous–yellow. Tibiae of the first leg pairs covered with pilose scales (hairy).

Male genitalia (Fig. 2). Gnathos round. Tegumen small, pedunculi laterally broadened. Transtillae rather narrow, slightly incurved, with a sharp, spiky end. Cucullus rounded, not too long, its width is about 1/2 of its length. Valvula small, triangular, with rounded ventral edge. Sacculus strongly sclerotized, its ventral edge is thickened, almost entirely straight. Its caudo-ventral angle is formed into a long sharp spike.

The caudodorsal angle with a thickened, sclerotized process resembling an animal paw (a cat paw). Phallosome long, contains two chitinized rods of unequal length. Lower (interior) rod is slightly longer, with flattened and sharp tip. Upper rod is broader, narrowing to its end. Its tip is flattened and sharp, similarly as in the case of the lower rod, but larger. There are two kinds of cornuti: two thorny cornuti on the basal platform, and three separated, individually positioned cornuti having the same, thorny shape.

Abdomen (Fig. 3). Anterio-lateral struts reach exactly to the third tergite on its distal end. Posterio-lateral struts are missing, transversal strut is intensively chitinized, has a half-moon shape. Distal edge is straight, and reaches till the 1/2 of the width of tergal discs of 2° tergite. Tergal discs are sprinkled with a number (28–34; 3° tergite) of short, conical rods. Their length is about twofold of their width.

Habitat and bionomy. The species has been found on a salt meadow with *Limonium* sp. Adults occur at the end of June, fly during the daytime in large quantities. Feeding plant and preimaginal stages are not known yet.

Name derivation. Imathia – the regional unit of Greece, the region in which the locality of the described species is situated.

Distribution. Known only from the type locality. Nowadays a new highway is running through the type locality.

Female not known.

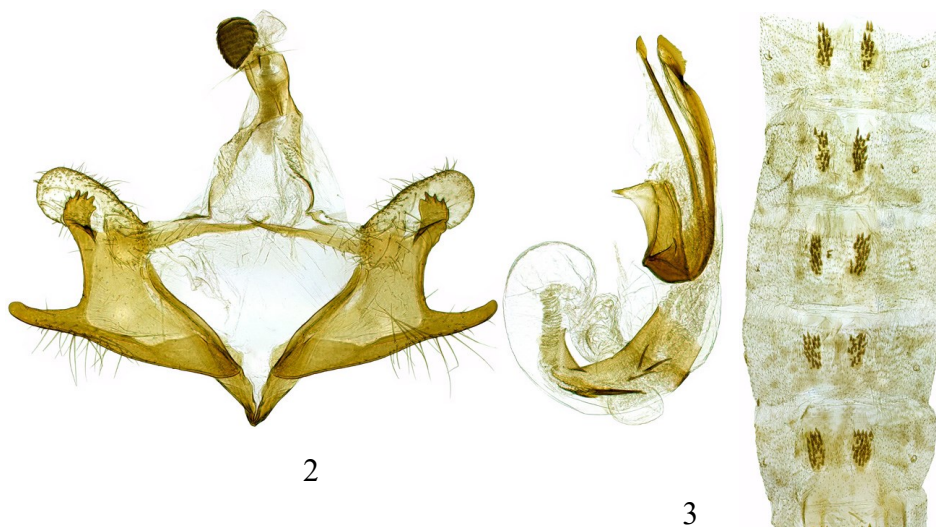


Fig. 1. *Coleophora imathiensis* sp. nov. – adult

Fig. 2. *Coleophora imathiensis* sp. nov. – genital aparat male

Fig. 3. *Coleophora imathiensis* sp. nov. – abdomen

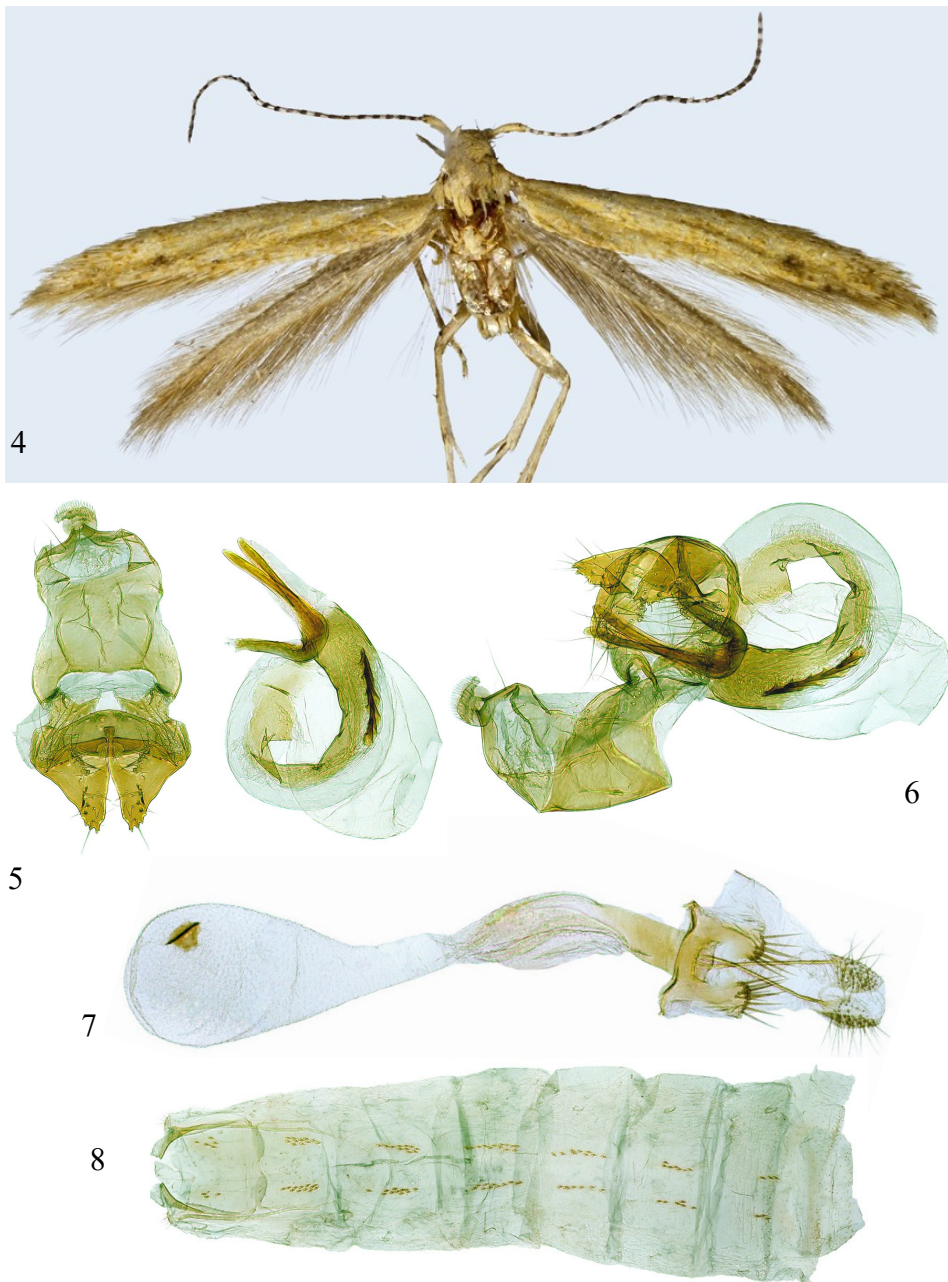


Fig. 4. *Coleophora epirusella* sp. nov. – adult

Fig. 5. *Coleophora epirusella* sp. nov. – genital aparat male dorso-ventral view

Fig. 6. *Coleophora epirusella* sp. nov. – genital aparat male lateral view

Fig. 7. *Coleophora epirusella* sp. nov. – genital aparat female

Fig. 8. *Coleophora epirusella* sp. nov. – abdomen

***Coleophora epirusella* sp. nov.** (Figs 4–8)

Holotype: 1 ♀, Greece, Igoumenitsa, 5 km W, 10 m a.s.l., 28. 6. 2001, leg. Skyva, coll. NMPC, GP 26573 IgR (Fig. 4) | Paratypes: 1 ♂, Greece, Igoumenitsa, 5 km W, 10 m a.s.l., 28. 6. 2001, leg. Skyva, coll. Richter, GP 26569 IgR. 2 ♂♂ Greece, Igoumenitsa, 5 km W, 5 m a.s.l., 14. 7. 2005, leg. Skyva, coll. Skyva, GP 26553 IgR, GP26560 IgR, 1 ♀, Greece, Igoumenitsa, 5 km W, 5 m a.s.l., 14. 7. 2005, leg. Skyva, coll. Skyva, coll. Šumpich, GP26561 IgR.

Diagnosis. Belongs to smaller species, habitually and with its genitalia resembling *Coleophora asthenella* Constant, 1893. However, its wingspan is larger, has about 9 – 10 mm. Ground colour of the forewing is ochre, without significant proportion of larger scales. There are considerable differences in the female's genitalia: different shape of sterigma and colliculum, ductus bursae broad in its medial part, with membranous folds. There are differences in the shape of signum too.

Description. head and the forehead (frons) yellowish, ochreous–yellow, labial palpi of same colour, paler at its base, with admixture of few darker, brown scales. The second segment is approximately as long, as the eye diameter. The third segment is slightly shorter.

Proboscis and subscaphium have yellowish, ochreous-yellow colour. Subscaphium covered with long scales. Antennae segmented, brown-white ringed.

Forewing has ochre-yellow ground colouration, sprinkled with larger scales. In the 2/3 of its length it contains a cluster of darker scales forming weak blotch. Cilia concolourous with ground colour.

Hind wing ochre-yellow, with smooth silvery gloss. Cilia of same colour as those of forewing.

Legs: all three pairs of legs are of ochreous-yellow in colour.

Male genitalia (Fig. 5, 6). gnathos rounded, sparsely covered with broad pale scales. Tegumen robust, broad, and almost straight lateral margin. Pedunculi short and broad. Transtilla triangular, incurved, spike-ended. Cucullus absent. Sacculus well chitinized, triangular, bearing two or three short teeth. Phallotheca long, with two equally long, darkly sclerotized rods. Caulis long. Cornuti thorny, with 6 strong thorns situated at the basal platform.

Female genitalia (Fig. 7). papillae anales small, round. Posterior apophyses 2 x longer as papillae anales. Anterior apophyses – only slightly indicated. Sterigma weakly sclerotized, its width is approximately same as its length. Distal margin rounded, sprinkled with long and strong bristles. Proximal margin undulated, with two folds, situated distantly from its medial part. Ostium broad, colliculum cylindrical, gradually mounts to ductus. Ductus bursae membranous, broad, its length is about twofold of its width. Corpus bursae pyriform, signum has the shape of an eccentric lens.

Abdomen (Fig. 8): Posterio-lateral struts very thin, their length is about 1/2 of the length of the anterio-lateral struts. Transverse strut broad with double convex distal margin and with central depression. Proximal margin is weak, undulated, with 2 waves. Tergal discs are narrow and long. Their length is approximately six fold of their width, 10–12 (3rd tergite) conical spines are situated in 1–2 lines.

Name derivation. Epirus – geographic region in north-western Greece, the finding place of the species.

Distribution. By now, the species is known only from its type locality.

List of species recorded from Macedonia in 2017

Faunistic research and consequent taxonomic studies of the Coleophoridae family Bruand, 1850 have been systematically conducted on the territory of the Balkan Peninsula since 2010. Results of these studies were summarised and published in two articles. Richter & Pastorális (2015) summarises results from the years 2010–2014, and Richter (2017) from the years 2015–2016.

In 2017, the „Coleophoridae faunistic research” took place only on the territory of Macedonia. During this year, three field trips have been conducted., first in April (15. 04. – 26. 04. 2017), second in June (08. 06. – 27. 06. 2017) and the third in August (17. 08. – 28. 08. 2017). Altogether 75 species of the genus *Coleophora* Hübner, 1822 have been recorded, out of which 16 species as new for the Macedonian fauna, 3 species new for the Balkans and one species (*Coleophora discomaculella* Toll & Amsel, 1967) is new for the continental Europe. Further we found new specimens of *Coleophora vardarella* Richter, 2017 (2 males and 2 females). The female of this species was not known up to date.

Methods

Moths were collected by LED light traps (powered by 12 V battery), mainly during the night hours. Only small portion of the specimens were collected with an insect net. Few specimens were reared from larvae collected from their feeding plants. Chloroform was used for anaesthesia of the attracted specimens. Few hours after the collection the collected specimens were pinned and spreaded. For moth determination appropriate literature has been used, as well as the comparative specimen from the authors collection. Giorgio Baldizzone determined some of the species here mentioned. Genital preparates were prepared from each specimen. If not stated otherwise, the biological material is deposited in the author's private collection.

List of recorded species

Coleophora vardarella Richter, 2017 – Macedonia, Krivolak, 22. – 23. 6. 2017, 1 ♀; Pepelište 24.–25. 6. 2017, 2 ♂♂, 1 ♀.

Description of a female: Sexual dimorphism is not apparent, external characteristics of a female are identical with those of a male.

Genitalia (Fig. 9): Papillae anales long and slender. Posterior apophyses 2x longer as anterior apophyses. Sterigma trapezoid, slightly sclerotized, width is approximately same as length, on distal margin rounded, densely sprinkled with long bristles. Proximal margin with irregular sclerotized projections. Ostium bursae broad, situated in the proximal third of sterigma. Colliculum long, tubular, in its distal part slightly sclerotized. Central part membranous, expands proximally, rounding from both sides. This part is sclerotized, at its proximal part more intensively. Spinulate section of ductus bursae curved, raches slightly more than the ½ of the colliculum length. Corpus bursae oval, signum thorny.

Coleophora striolatella Zeller, 1849 – Macedonia, Krivolak near Negotino, 20. – 26. 4. 2017, Pepelište near Negotino, 25. 4. 2017, 8. – 9. 6. 2017.

Southern species, distributed through Iberian Peninsula, France, Italy. From Central Europe recorded only in Hungary. From the Balkan countries it is known only from Croatia. **New species for Macedonia.**

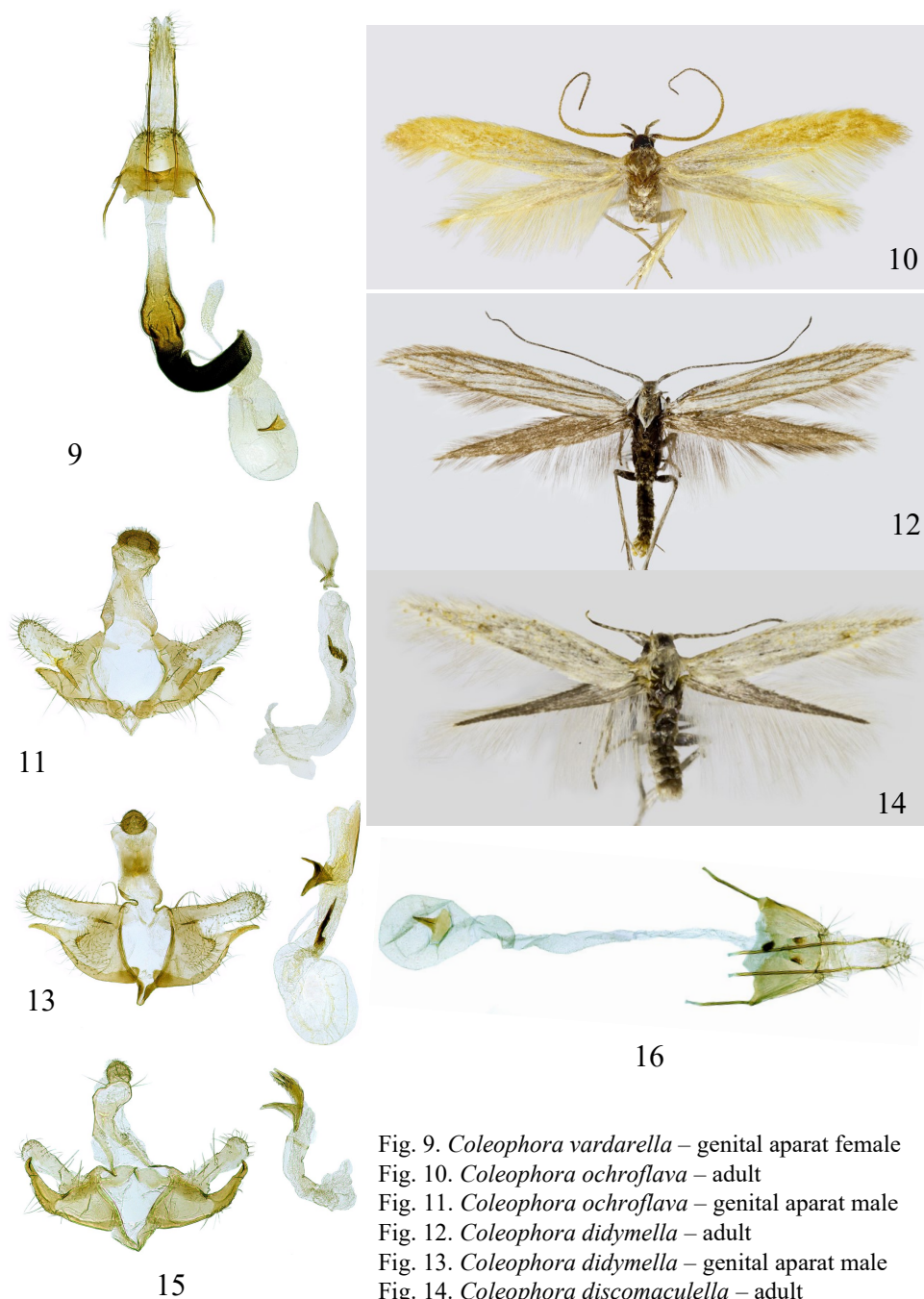


Fig. 9. *Coleophora vardarella* – genital aparat female
 Fig. 10. *Coleophora ochroflava* – adult
 Fig. 11. *Coleophora ochroflava* – genital aparat male
 Fig. 12. *Coleophora didymella* – adult
 Fig. 13. *Coleophora didymella* – genital aparat male
 Fig. 14. *Coleophora discomaculella* – adult
 Fig. 15. *Coleophora discomaculella* – genital aparat male
 Fig. 16. *Coleophora discomaculella* – genital aparat female

Coleophora bifrondella Walsingham, 1891 – Macedonia, NP Galičica, Asan Cura, 20. 8. 2017 – rare species, its occurrence has been confirmed only from Spain, France, Italy and Croatia. **New species for Macedonia.**

Coleophora niveiciliella Hofmann, 1877 – Macedonia, Krivolak near Negotino, 20. – 24. 4. 2017 – this species is known from the Western (France) and Central Europe (Germany, Austria, Slovakia, Hungary). On the Balkan found only in Croatia, recently we have confirmed the species from Macedonia. **New species for Macedonia.**

Coleophora klimeschiella Toll, 1952 – Macedonia, Pepelište near Negotino- Serta, 26. – 27. 6. 2017; Krivolak near Negotino, 17. 8. 2017 – species has been recorded in eastern parts of Europe (Ukraine, Romania) and in southern parts of Russia. The westernmost record is from Hungary. From the Balkans this species has been reported only from Greece. **New species for Macedonia.**

Coleophora ochroflava Toll, 1961 – Macedonia, Pepelište near Negotino-Serta, 26. – 27. 6. 2017 (Fig. 10 – 11) – till so far, the species has not been reported from central and western parts of Europe. Occurs in northwestern parts of Russia, Ukraine and Romania, on the south in Italy. From the Balkans formerly known only from Bulgaria and Greece. **New species for Macedonia.**

Coleophora hieronella Zeller, 1849 – Macedonia, Pepelište near Negotino, 8.-9. 6. 2017 – the species is widespread in the western and southwestern Europe (Portugal, Spain, France, Italy). In the Central Europe it has been found only in Hungary. Records from Croatia and Greece confirm its presence on the Balkan. **New species for Macedonia.**

Coleophora albipennella Staudinger, 1879 – Macedonia, Pepelište near Negotino-Serta, 26. – 27. 6. 2017 – previously known only from Turkey, Armenia, Kazakhstan and Iran. Recently the species has been found also in Bulgaria (Richter 2017). **New species for Macedonia.**

Coleophora didymella Chrétien, 1899 – Macedonia, Pepelište near Negotino, 15. – 19. 4. 2017 (Fig. 12 – 13) – reare species, known only from France and Italy. Just recently recorded from Hungary (Buschmann & Pastorális 2017). **New species for Macedonia and for the Balkan Peninsula.**

Coleophora vicinella Zeller, 1949 – Macedonia, Pepelište near Negotino, 8.-9. 6. 2017, 24. 6. 2017; Bjelovodica near Prilep, Mermerno jezero, 13.-14. 6. 2017 – widespread except of the northern countries of Europe (Scandinavia, Baltic countries, British Isles, Germany, Poland). From the Balkans it has been recorded from Slovenia, Croatia and Greece. **New species for Macedonia.**

Coleophora taeniipennella Herrich-Schäffer, 1855 – Macedonia, Pepelište near Negotino, 24. 6. 2017 – this species is widespread throughout the European countries. It is known from Croatia, Albania and Greece, published records are missing from several countries of the Balkan Peninsula. **New species for Macedonia.**

Coleophora motacilella Zeller, 1849 – Macedonia, Pepelište near Negotino-Serta, 28. 8. 2017 – this species is distributed from France, central Europe, through Ukraine, till the southern parts of Russia. Not recorded from north-European countries, neither from southern Europe. **New species for Macedonia and for the Balkan Peninsula.**

Coleophora luteolella Staudinger, 1880 – Macedonia, Krivolak near Negotino, 17. 8. 2017; Pepelište near Negotino-Serta, 18. 8. 2017 – southern species, not recorded from the northern and central parts of Europe. This species occurs mainly in the western, south-western parts of Europe: Iberian Peninsula, France and Italy. From the Balkans known only from Greece. **New species for Macedonia.**

Coleophora thymi Hering, 1942 – Macedonia, NP Galičica Asan Cura, 20. 8. 2017 – The species is distributed in a strip, from Germany and the Central European countries to Italy. Absent from the northern –, western – and eastern parts of Europe. From the Balkans known only from Greece. **New species for Macedonia.**

Coleophora millefolii Zeller, 1849 – Macedonia, NP Galičica Asan Cura, ex l. *Achillae* sp., 20. 8. 2017 – species with considerable wide distribution range. It could be found from the Scandinavian countries to Bulgaria, Albania and Greece. Species is not known from the British Isles and the Iberian Peninsula. **New species for Macedonia.**

Coleophora gardesanella Toll, 1954 – Macedonia, Pepelište near Negotino-Serta, 26. – 27. 6. 2017 – this species has scattered distribution in almost entire Europe, including British Isles. Found also in the Balkans, in Croatia and Bulgaria. **New species for Macedonia.**

Coleophora discomaculella Toll & Amsel, 1967 – Macedonia, Pepelište near Negotino – Serta, 18. 8. 2017, 28. 8. 2017; Krivolak near Negotino, 25. – 26. 8. 2017 (Fig. 14–16) – surprising record. Up to this finding, the species was known only from the Canary Islands and from the countries of East-Palearctic region. **New species for the continental Europe, the Balkan Peninsula and for Macedonia.**

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