Nova Hedwigia Vol. 92 issue 1–2, 245–256
Stuttgart, February 2011

Article

New and rare Myxomycetes of Ukraine. 2. Southwest Crimea*

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With 3 figures

Leontyev, D.V., R. McHugh, K.A. Fefelov & A.V. Kochergina (2011): New and rare Myxomycetes of Ukraine. 2. Southwest Crimea. – Nova Hedwigia 92: 245–256.

Abstract: During the 2005–2008 summer-autumn seasons, myxomycete biodiversity was investigated in several locations within the South-West of the Crimean peninsula (Ukraine). Fourteen taxa found appeared to be new for the Crimea; eleven of them new to Ukraine. Three others were estimated as rare for the peninsula. Descriptions, localities, information on substrata and microphotographs are presented for all these species. Taxonomy, ecology and distribution of some species are discussed.

Key words: Myxomycetes, biodiversity, Ukraine.

Introduction

The Crimean peninsula or Crimea is located on the Northern coast of the Black Sea and on the Western coast of the Sea of Azov, bordering the 'continental' part of Ukraine from the South. Its total land area is 26 200 sq. km, and the topography is rather various: there are extensive plains in the North, some hilly areas in the South-East and the Crimean Mountain ridge in the South (the highest peak reaches 1545 m

*The first part is published: Leontyev, D.V., U. Eliasson, A.V. Kochergina & I.I. Morozova (2009): New and rare Myxomycetes of Ukraine. 1. East Forest-Steppe. Karstenia 49: 61–67.

DOI: 10.1127/0029-5035/2011/0092-0245 0029-5035/2011/0092-0245 $ 3.00

above sea level). The climate of Crimea varies from semiarid in the North to dry subtropical in the South; the most characteristic ecosystems there are maquis communities (so called 'shiblyak'), broadleaved beech-hornbeam forests, mountain pine forests, alpine meadows, forest-steppes, salt-lands and extensive Pontic steppes. With all this, Crimea represents the one of Europe's main biodiversity hotspots with 117 endemic taxa of higher plants (Shelyag-Sososnko 1996).

Investigations of Myxomycetes (Eumycetozoa) have been carried out in Crimea several times. The first detailed records were published by Novozhilov (1988) for the Cape Martyan Nature Reserve. Field collection lists were published for the Yalta Mountain-Forest Nature Reserve (Dudka et al. 1999, Dudka 2000, Leontyev 2005). Finally, detailed investigation of the myxomycete biota was provided for the Crimean Nature Reserve (Romanenko 2006). Now the list of myxomycetes known for Crimea amounts to 137 species. Nevertheless, out of the abovementioned reserves no data on myxomycete diversity in Crimea has been published so far. Therefore the species composition in most of the territories of the peninsula is still unknown and further investigations are needed.

Materials and methods

During three expeditions, in July of 2005, September of 2007 and October of 2008 we collected myxomycetes and substrates for moist chamber cultures in three points of South-West Crimea: the Angara, Baydar and Karalez valleys.

The Angara valley, further AV (44°45'N/34°20'E) lies between the Chatyr-Dag (1527 m) on the West and the Demerdzhy Mountain (1359 m) on the East. The mountains called Pahkal-Kaya (1141 m) and Elkh-Kaya descend from the Demerdzhy massif to the valley. The vegetation here is formed by rather dense forest of *Carpinus betulus* L. and *Fagus orientalis* L. with addition of *Quercus petraea* Lieb., *Cerasus avium* L. and *Acer stevenii* Pojark. in the second storey. The trees are on average 100–150 years old; some reach 300–500 years. In some locations *Pinus pallasiana* D.Don. communities can be found.

The Baydar valley, further BV (44°24'N/33°46'E) is a part of the nature-landscape preserve called The Baydarskyi, which has an area of 24 295 ha. The vegetation here is a forest with *Carpinus betulus* L., *Fagus orientalis* L., *Quercus pubescens* Willd. and *Q. petraea* Lieb., with the second storey formed by *Acer campestre* L., *Cornus mas* L., *Juniperus oxycedrum* L. and *Fraxinus oxycarpa* M.Bieb. ex Willd.

The Karalez valley, further KV, is a narrow lowland, compressed between two rocky slopes. The 'Cave town' Eski-Kermen, situated here, (44°36'N/33°44'E) is a rocky plateau 1040 m long, 170 m wide and 30 m high above the Karalez Valley. The vegetation here is allied to maquis (shiblyak), characterised by the domination of undersized thorny drought-resisting bushes and low trees, like *Juniperus oxycedrus* L., *Paliurus spina-christi* Mid., *Prunus stepposa* L., *Ulmus minor* Mill., *Crataegus* spp., *Rosa* spp. etc.

The total of near 350 specimens was collected by co-authors. This included both material that had developed under natural conditions in the field (fc) as well as material obtained from 28 moist chamber cultures (mc). All cultures except one were positive for myxomycete fruiting bodies or plasmodia. To make the moist chambers, the generally accepted method was used (Stephenson & Stempen 1994).

Specimens were placed in the Scientific Herbaria of V.N.Karasin National University of Kharkiv (CWU), Institute of Plant and Animal Ecology RAS (SVER) and private collection of Roland McHugh, Ireland (RM). Microphotographs were taken using the digital camera Canon Power Shot A510.

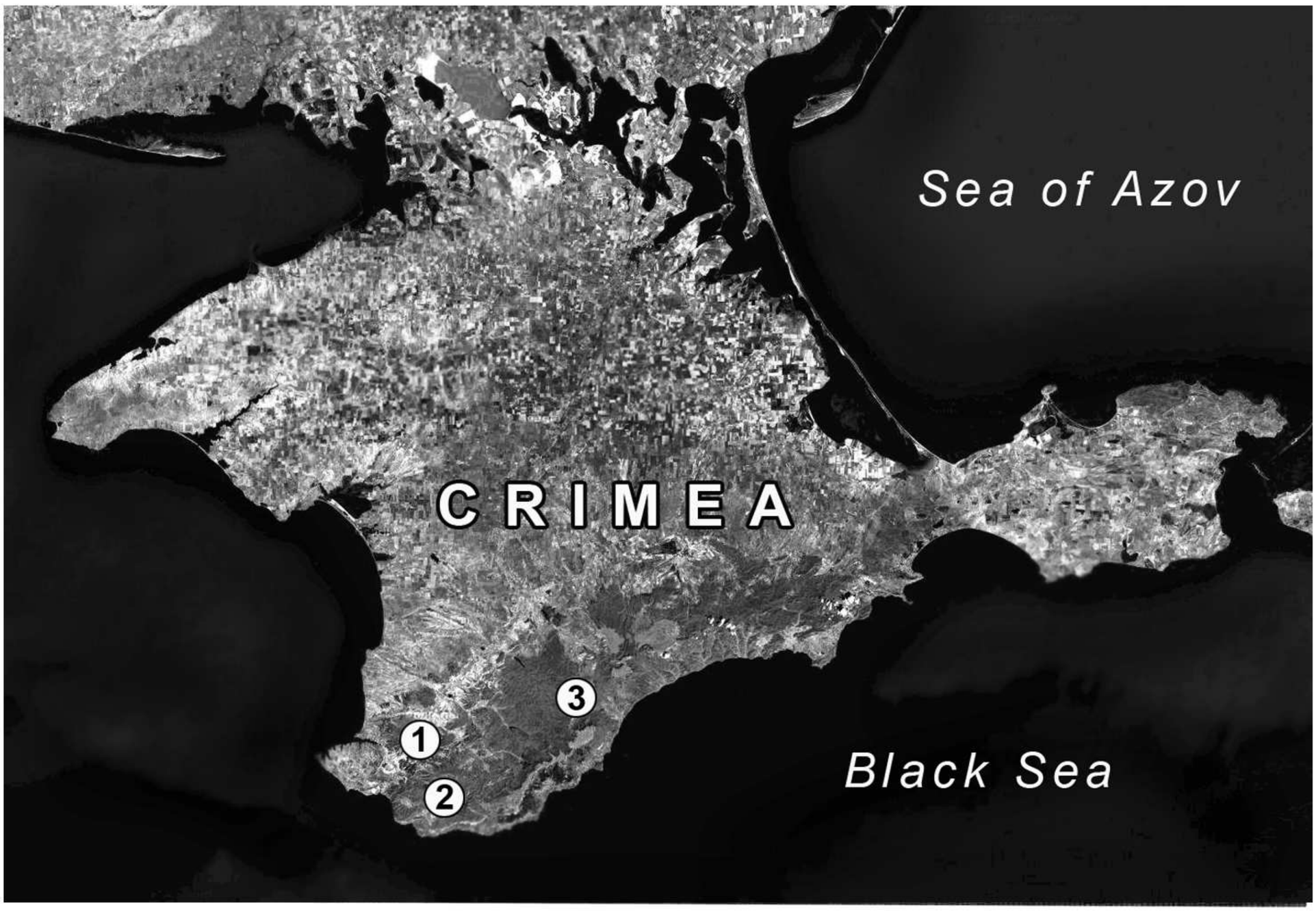


Fig. 1. Study area. 1. Karalez valley; 2. Baydar valley; 3. Angara valley.

Results and discussion

On the studied territory 71 species from 26 genera, 10 families and all orders of the class Myxomycetes were recorded (Ostroushko & Leontyev 2007, Leontyev et al. 2009). The taxonomic structure of myxomycetes is quite typical for the temperate zone. The richest family is the Trichiaceae s.l. (17 species; 23.9% of total species number), a little poorer are the Physaraceae (14 species; 19.7%), Didymiaceae and Stemonitidaceae (12 species each; 16.9%). *Didymium* and *Physarum* were the biggest genera (9 species each). Substrate-forming plants represented the most abundant vegetation types of Crimean mountain forest. *Carpinus betulus* appeared the richest: as many as 21 species of myxomycetes were found on its wood, bark and fallen branches. Other plant species have shown smaller myxomycete numbers: *Fagus orientalis* – 16 species, *Quercus pubescens* – 10, *Acer campestre* – 6, species of *Fraxinus* – 5. The most favorable types of substrata were dead wood (33 species), bark of living trees (23) and leaf litter (12).

As a result of research fourteen taxa (thirteen species and one variety) of myxomycetes were found new for Crimea (*); eleven of them appeared to be new for Ukraine (**). Another three species were found to be rare in the region, and probably for the country as a whole, being found in Crimea only once. A list of myxomycetes with descriptions, locality data and some comments on morphology and distribution is given below.

*__Amaurochaete atra__ (Alb. & Schwein.) Rostaf. (Fig. 2.1) – three aethalia on wood and bark of *Pinus pallasiana* D.Don. (scorched trunk), AV, Elkh-Kaya, mountain *Fagus-Carpinus* forest, fc, 10.10.2008, SVER 6671, CWU 2114. Coll. K.A.Fefelov, det. D.V.Leontyev.

Aethalia pulvinate, 2–3 cm long, deeply black. Hypothallus rust-brown. Cortex thin, fragile, shining black. Pseudocapillitium dark brown, radiating from the base of the aethalium as robust branching projections, plate-like at the base and thread-like on the top. Spores in mass black, brown in transmitted light, somewhat ovoid, densely ornamented with small warts, 12 μm in diam. Plasmodium not seen.

This species principally prefers to develop on coniferous trees (Ing 1999); such a strategy we call 'conifericolous'. *Amaurochaete atra* has never been found in Crimea before, but it is known in Ukraine from several old collections, made in central and Western parts of the country: Roztochya region (Krupa 1889), Right-Bank Polyssya (Zelle 1925, Pidoplichko 1932) and Left-Bank Polyssya (Borszchow 1868). It is noteworthy that such a conspicuous species was not found in Ukraine after 1932. Some explanation of this fact is provided by the observations of Dr.Grazina Adamonyte, who has shown that *A. atra* was found sporulating rather actively in post-fire forests (Adamonyte 2008). Our finding of *A. atra* on a scorched trunk of *Pinus pallasiana* supports this assumption. Forestry activities, including control of forest fires, could decrease the natural abundance of *A. atra*.

**__Clastoderma pachypus__ Nann.-Bremek. (Fig. 2.2) – about 20 sporocarps on bark of living *Quercus pubescens* Willd., AV, Pahkal-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008 (hereinafter a date for mc collections indicates the collection of substrates), RM 1614, CWU 2117. Coll. et det. R.McHugh.

Sporocarp stalked, 0.25 mm tall. Stalk near two thirds of the total height, tapered from 30 mm at the base to 5 mm on top; rough, consisting of dirty-yellowish translucent granular matter; in the upper part smoother and darker. Columella splitting abruptly into the main capillitial branches. Capillitium violet-brown, consisting of a few smooth branches, looped at the periphery to form a wide-meshed net. Capillital plates sparsely present, somewhat triangular, dark brown. Peridium persistent as a collar around the stalk apex. Spores pale violaceous in transmitted light, somewhat angular, densely verruculose, 12–13(15) μm diam. Plasmodium not seen.

This is the first finding of *C. pachypus* in Ukraine. According to the database of Arkansas University (http//:slimemold.uark.edu), the species is quite rare, being found so far in North and Central America, France, Spain, and Turkey. It is also known from Austria, the British Isles (McHugh, 1985) and Lithuania (Adamonyte 2007).

__Comatricha tenerrima__ (M.A.Curtis) G.Lister – two sporocarps on fallen twig of *Fagus orientalis* Lipsky, AV, Pahkal-Kaya, mountain *Fagus-Carpinus* forest, fc, 10.10.2008, RM 1607. Coll. et det. R.McHugh.

Sporocarps scattered, stalked, 1.5–2 mm high, sporotheca cylindrical in shape, pointed at apex, pink-brown. Stalk black, ca. 1 mm long, widened at base, columella continuous to apex, with capillitium attached to all parts. Capillitium much branched

and anastomosing, without free ends. Spores very pale brown, minutely roughened, 7–8 µm diam. Plasmodium white.

Comatricha tenerrima is a widely distributed species, known from five continents and all major climatic zones. Nevertheless, the species is unexpectedly rare in Ukraine, having been found so far only once in the Crimea (Dudka et al. 1999) and also in the Carpathians (Dudka & Krivomaz 1996) and Left-Bank Forest-Steppe (Krivomaz 2001). In each location the species is represented only by one specimen. The reason of for so few records of this common species we may find in notes of B.Ing (1999) who accented, that *C. tenerrima* sporulates predominately on herbaceous litter in wet habitats. Such habitats look to be underexplored in Ukraine, where studies to the present are largely composed of xylophylic and corticophylic species.

****Dianema harveyi** Rex (Fig. 2.6) – single sporocarp on bark of living *Fraxinus* cf. *oxycarpa* M. Bieb. ex Willd., AV, Pahkal-Kaya, mountain *Fagus-Carpinus* forest, mc. 10.10.2008, RM 1611, CWU 2122. Coll. et det. R.McHugh.

Sporocarp sessile, pulvinate, red-brown, iridescent, ca. 1 mm diam. Capillitium of stout threads sparingly branched. Spores pale yellowish, spinulose, 8-10 µm diam. Plasmodium white.

This corticolous species has never been recorded from Ukraine. It is widely distributed (West of the Europe, Lithuania, Mongolia, Japan, USA), but everywhere is known as scanty finds (http//:slimemold.uark.edu), probably because careful moist chamber investigations are needed for its discovery.

****Dictydiaethalium ferrugineum** Nann.-Bremek. (Figs 2.3–4) – three pseudoaethalia on bark of *Carpinus orientalis* L., KV, Cave town Eski-Kermen, 'shiblyak' forest on plateau slopes, fc, 08.10.2008, CWU 2125, SVER 6668. Coll. K.A.Fefelov, det. D.V.Leontyev.

Pseudoaethalium small, up to 5 mm long and 1.5 mm wide, bright rusty-brown, formed by a single layer of c. 50 closely adpressed sporothecae. The peridium of each individual sporotheca consists of a polyhedral cap 70–80 µm wide, with a smooth thread running from each corner to the base of the pseudoaethalium. Spores rusty-brown in mass, almost hyaline in transmitted light, with clearly perceptible oil (?) vesicles, 11–12 µm diam., minutely warted. Plasmodium carmine-pink.

This problematic species, often indicated as a synonym of *D. plumbeum* (Schumach.) Rostaf. (Lado, 2005–2010), has never been found in Ukraine before. Our material completely agrees with the author's description (Nannenga-Bremekamp 1966) and has all the features distinguishing it from typical *D. plumbeum*: extremely small rust-coloured pseudoaethalia, significantly bigger sporangial caps and spores, smooth pseudocapillitial threads and minute spore ornamentation.

Didymium sturgisii Hagelst. (Fig. 2.5) – 7 sporocarps on bark of living *Fraxinus* cf. *oxycarpa* M. Bieb. Ex Willd., AV, Elkh-Kaya, mountain Fagus-Carpinus forest, mc, 10.10.2008, RM 1610, CWU 2124. Coll. et det. R.McHugh.

Plasmodiocarps white, in small groups, rounded or irregular, 1–2 mm wide, 0.1–0.2 mm high. Peridium covered by rough white crust of angular lime crystals. Columella absent, the thickened base of fructification giving rise to a collection of erect limy pillars 15–20 μm thick, attached to the upper peridium. Capillitium scanty, composed of dark, sinuous, branched threads, attached to the base and peridium. Spores in mass almost black, violet-brown in transmitted light, 10–11 μm diam., minutely warted. Plasmodium not seen.

This species is known from Crimea only with one record (Novozhilov 1988), and has never been found in other parts of Ukraine.

Licea belmontiana Nann.-Bremek. – ca. 50 sporocarps on bark of living *Fagus orientalis* L., Elh-Kaya, mc, 10.10.2008, RM 1613a; tens of sporocarps on bark of living *Quercus pubescens* Willd. and *Acer* cf. *stevenii* Pojark., AV, Elh-Kaya and Pahkal-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008, RM 1613b. Coll. et det. R.McHugh.

Sporocarps gregarious, spherical to pulvinate, dark brown when fresh, glistening black on drying, 0.1–0.2 mm diam. Peridium divided into plates without ornamentation at edges. Spores smooth, light brown, 13–15 μm diam., with large pale germination pore. Plasmodium colourless.

This species was found in Crimea twice (Novozhilov 1988, Romanenko 2006), but has never been recorded in other parts of Ukraine.

Licea pusilla Schrad. – five sporocarps on fallen twig of *Juniperus oxycedrum* L., BV, *Quercus-Carpinus* forest, mc, 10.2007, CWU 2129. Coll. E.V.Ostroushko, det. D.V.Leontyev & U.Eliasson.

Sporocarps sessile, spherical to pulvinate 1.0–1.5 mm in diam., very dark brown, with a reticulum of ridges. Peridium of two connected layers, the outer gelatinous and dull, the inner membranous and shining; peridium yellow-brown in transmitted light. Dehiscence into several angular plates, remaining like petals around the opened sporocarp. Margin of peridial plates with a single row of large dark grains. Spores dark-brown in mass, olive-yellow in transmitted light, 15–17 μm diam., densely verruculose or spinulose, with a pale area. Plasmodium not seen.

This species is known from Ukraine by two records, the first from the Carpathian Mountains (Krzemieniewska 1934) and the second from the Cape Martyan Reserve in Crimea (Novozhilov 1988). From the other hand, *Licea pusilla* is a quite common species in West Europe and South America.

****Licea scintillans** McHugh & D.W.Mitch. (Fig. 2.7) – ca. 100 sporocarps on bark of living *Acer* cf. *stevenii* Pojark., AV, Pahkal-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008, RM 1617, CWU 2130. Coll. et det. R.McHugh.

Sporocarps scattered, sessile on constricted base, up to 0.2 mm in diam., silvery grey, strongly iridescent in green, blue and rosy colours. Peridium single, membranous, hyaline, smooth, sometimes encrusted with refuse matter and sand crystals adhering to the surface. Spores reddish-brown in mass, pale yellow-brown in

transmitted light, 10 μm diam., with a conspicuous germination pore. Plasmodium not seen.

This recently described species has been found so far only in the British Isles, so this record is the first not only for Ukraine, but also for continental part of the Europe.

****Perichaena quadrata** T.Macbr. (Fig. 3.3) – 14 sporocarps on dead bark of *Fagus orientalis* Lipsky, BV, *Fagus-Carpinus* forest, mc, 25.08.2006, CWU 2135. Coll. E.V.Ostroushko, det. D.V.Leontyev.

Sporocarps sessile, crowded, polygonal from mutual pressure, 0.1–0.5 mm diam. Dehiscence circumscissile; lid persistent. Peridium double; the outer layer cartilaginous, opaque, dark purple-brown; inner layer pale yellow, membranous; below the dehiscence line the peridium is single, dark brown. Capillitium abundant, ornamented with irregular reticulation; elaters pale yellow, 1.5–2.5 μm diam. Spores golden-yellow in mass, pale yellow in transmitted light, 9–11 μm diam., minutely spinulose. Plasmodium white.

The species is very similar to *P. depressa* Lib., but differs in its small sporangia, less than 0.5 mm, persistent lid and reticulate ornamentation of the capillitium (Keller & Eliasson 1992, Neubert et al 1993). *P. quadrata* is known from all parts of Europe, but has not been recorded from Ukraine until now.

***Paradiacheopsis rigida** (Brândza) Nann.-Bremek. (Fig. 2.8) – single sporocarp on bark of living *Quercus pubescens* Willd., KV, Cave town Eski-Kermen, plateau *Quercus-Carpinus* forest, mc, 08.10.2008, RM 1609a; bark of living *Fagus orientalis* Lipsky; AV, Elkh-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008, RM 1609b; bark of living *Acer* cf. *stevenii* Pojark.; AV, Pahkal-Kaya, mountain *Fagus-Carpinus* forest; mc, 10.10.2008, RM 1609c. Leg. et det. R.McHugh.

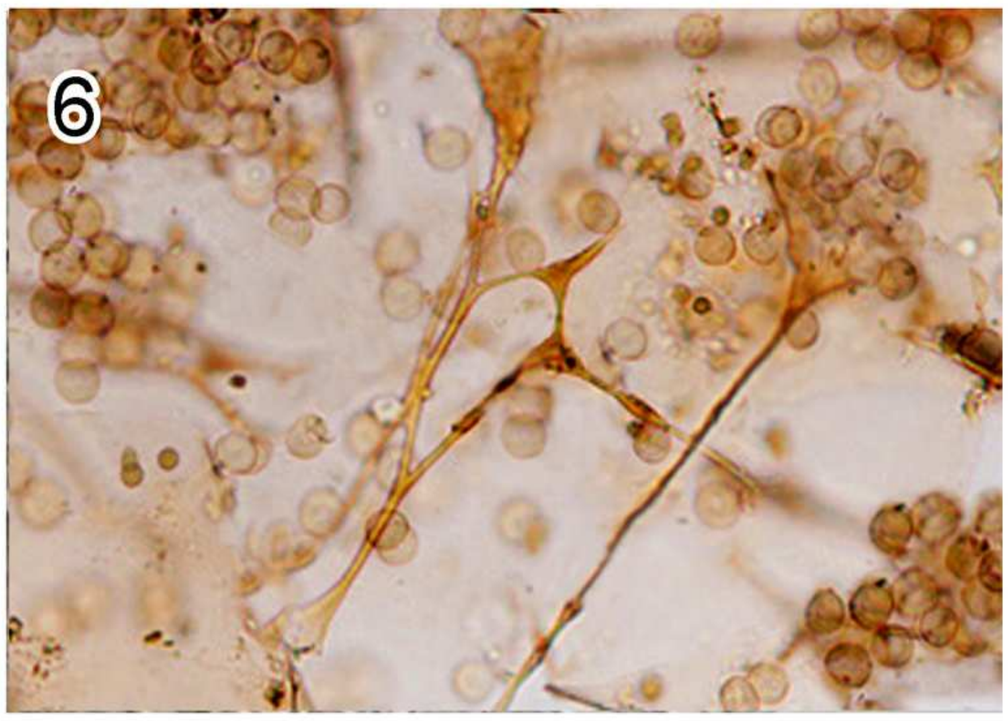
Sporocarps scattered, stalked, globose, dark brown, ca. 0.7 mm high. Stalk black, opaque except at base which is fibrous and brown, ca. 0.5 mm long. Capillitium robust, diverging from tip of columella at centre of sporocarp, dividing but not anastomosing, with blunt tips. Spores grey-brown, minutely warted, 8–9 μm diam. Plasmodium white.

The species was previously found in Ukraine only in the Gomolsha Forests National Nature Park in the East Forest-Steppe region (Leontyev 2006). Our record is the first for the Crimean peninsula. Other known locations of this species are France, Germany, Altay Mts in Russia, Japan and USA (http//:slimemold.uark.edu).

****Physarum pusillum** (Berk. & M.A.Curtis) G.Lister – bark of living *Acer* cf. *stevenii* Pojark., AV, Pahkal-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008, not kept in herbaria. Coll. et det. R.McHugh.

Sporocarps gregarious, stalked, globose, pale grey but reddish brown at the base, 1–2 mm high. Stalk translucent, reddish brown. Columella absent. Capillitium much branched with numerous white lime nodes. Spores brown, finely warted, 10–12 μm diam. Plasmodium white.

Our record of this species is the first for the territory of Ukraine.



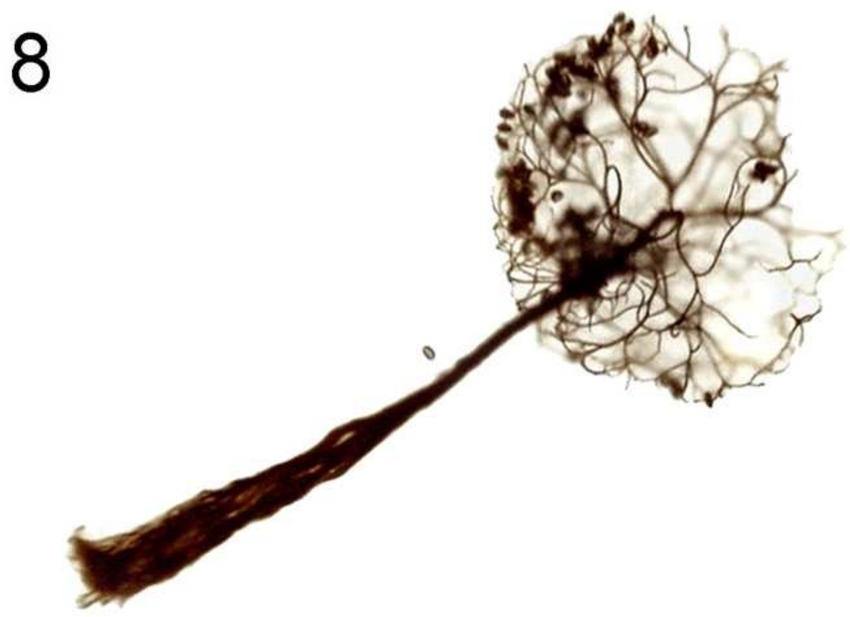
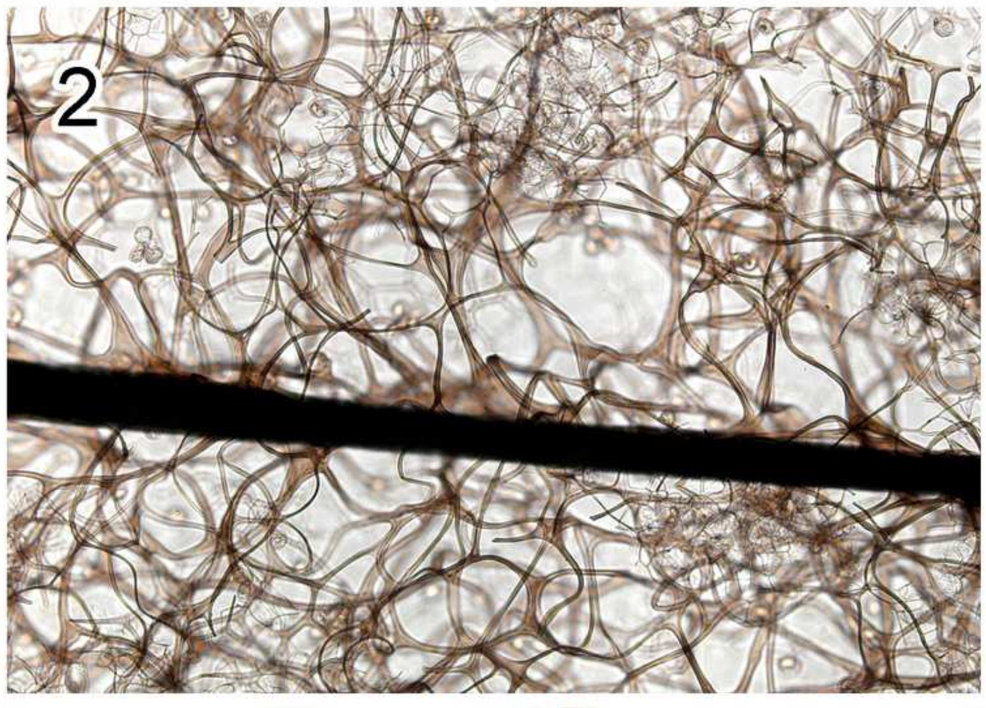
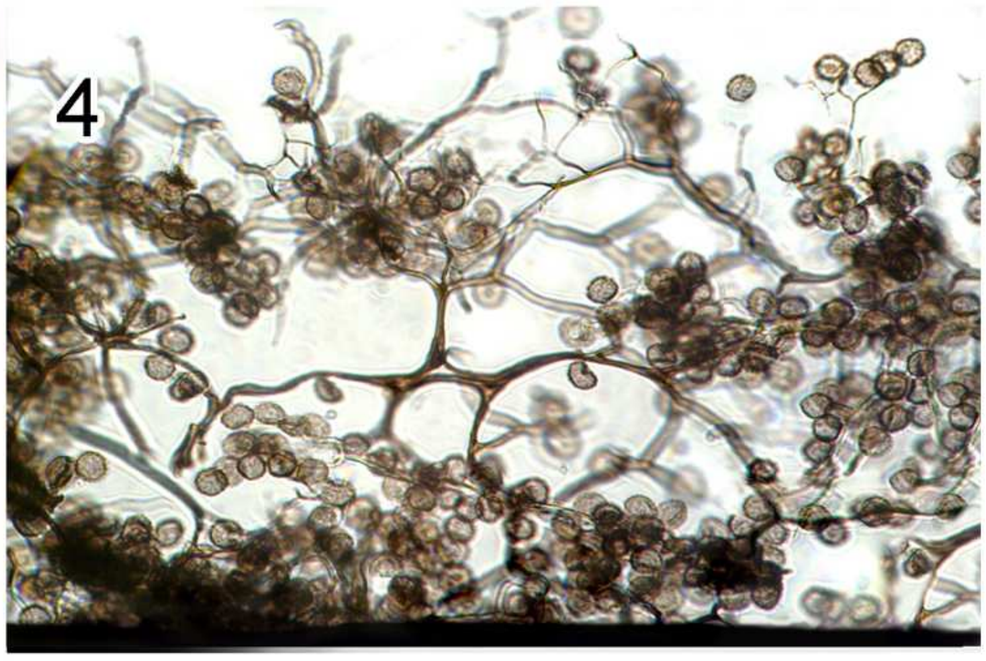


Fig. 2. Species collected in the South-West of Crimea, Ukraine. 1. *Amaurochaete atra* CWU 2114: aethalium, ×0.5; 2. *Clastoderma pachypus* CWU 2117: sporocarp with spores, ×600; 3–4. *Dictydiaethalium ferrugineum* CWU 2125: 3. pseudoaethalium, ×14, 4. spores, ×900; 5. *Didymium sturgisii* RM 1610: intact plasmodiocarp, ×14; 6. *Dianema harveyi* CWU 2122: capillitium and spores, ×300; 7. *Licea scintillans* RM 1617: sporocarps, ×100; 8. *Paradiacheopsis rigida* RM 1609a: sporocarp, ×300.





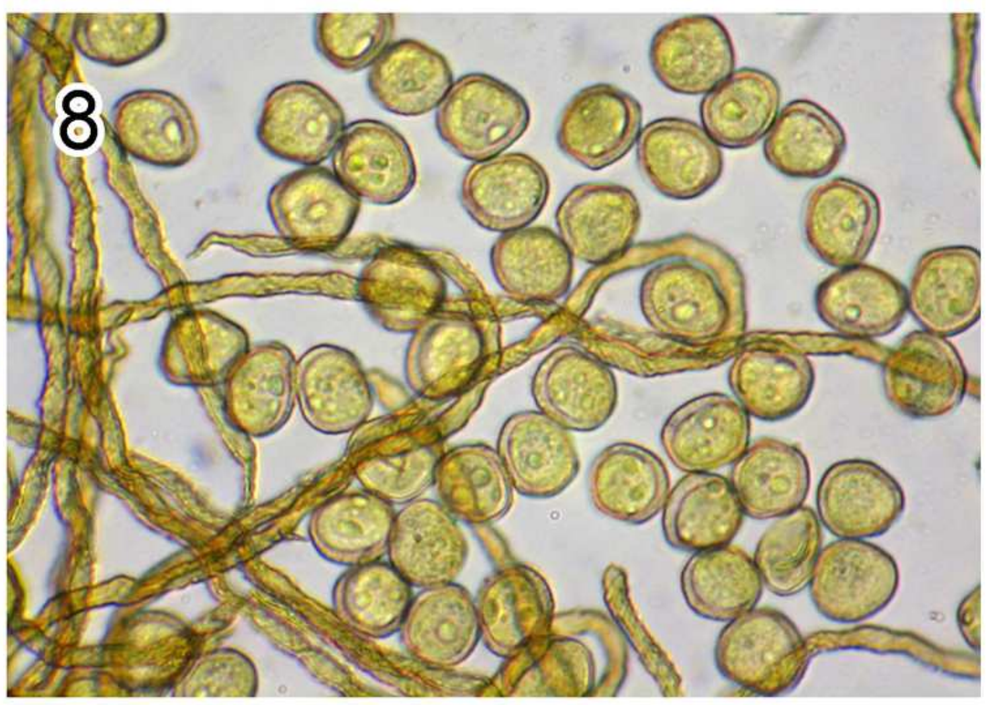


Fig. 3. Species collected in the South-West of Crimea, Ukraine (continuation). 1–2. *Stemonitopsis aequalis* SVER 6252: 1. sporocarps, ×7; 2. internal capillitial net, ×300, 3. *Perichaena quadrata* CWU 2135: sporocarps, ×8; 4. *Stemonaria gracilis* CWU 2140: capillitium and spores, ×300; 5–6. *Trichia contorta* var. *iowensis* CWU 2147: 5. sporocarps, ×14, 6. capillitium and spores, ×900; 7–8. *Trichia mirabilis* CWU 2148: 7. sporocarps, ×14, 8. capillitium and spores, ×900.

****Stemonaria gracilis** Nann.-Bremek. & Y.Yamam. (Fig. 3.4) – three colonies of sporocarps on bark of *Fagus orientalis* Lipsky, BV, Fagus-Carpinus forest, mc, 25.08.2006, CWU 2140. Coll. E.V.Ostroushko, det. D.V.Leontyev & U.Eliasson.

Sporocarps in small tufts, 2.5–3.0 mm tall. Sporotheca cylindrical, 1.5 mm tall, dark brown. Columella straight, flexuous at the apex. Capillitium dark umber-brown, forming dense internal net, 1–3 meshes across the radius, the branches are loop-like and united below the surface, but form many short free branches, pointing outwards. Spores in mass dark brown, pale brown in transmitted light 9–10 μm diam., with warts or spines, forming a net.

Our record of *Stemonaria gracilis* is the first for the territory of Ukraine. The species is generally rare (known also from Japan and Costa Rica; http//:slimemold.uark.edu) and quite problematic because of its strong resemblance with some other species of Stemonitidaceae with reticulate spores. The most prominent features of *S. gracilis* are comparatively large net-warted spores and the characteristic structure of the capillitium with many short, thin free ends on loop-shaped main branches.

****Stemonitopsis aequalis** (Peck) Y.Yamam. (Figs 3.1–2) – two colonies of sporocarps on dead wood of deciduous tree and fallen twigs, AV, mountain *Fagus-Carpinus* forest, fc, 05.07.2005, SVER 6250, 6252. Coll. et det. K.A.Fefelov.

Sporocarps gregarious, 4.0–5.0 mm in total height. Sporothecae cylindrical, with rounded ends, light purplish-brown, 0.4–0.6 mm diam. Stalk black, shining, 40–60% of the total height. Hypothallus well-developed, shining. Columella black, reaching to the apex of the sporotheca, sinuous on top. Radial threads of the capillitium numerous, winding, sometimes with light brown expansions in branching points. Superficial net well developed in some places, free ends short. Spores dark purplish-brown in mass, violet-brown in transmitted light, verruculose, 7.5 μm diam.

This problematic species was not recorded in Ukraine until now. Being quite similar to other *Stemonitopsis* species with verrucose spores (*S. gracilis* (G.Lister) Nann.-Bremek., *S. peritricha* (Nann.-Bremek.) Nann.-Bremek., *S. subcaespitosa* (Peck) Nann.-Bremek.), it is still recognizable due to comparatively large sporangia, long stalks and spores 7–9 μm (similar only with *S. peritricha* but the latter has extremely short stalks). Other known locations of the species are France, Russia (Ural and Altay Mts), Japan, Eastern Africa and Le Reunion Island (http//:slimemold.uark.edu).

****Trichia contorta** (Ditmar) Rostaf. **var. iowensis** (T.Macbr.) Torrend (Figs 3.5–6) – two sporocarps on wood of *Carpinus orientalis* L., AV, Elkh-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008, CWU 2147. Coll. et det. D.V.Leontyev.

Sporocarps globose, sessile on constricted base, solitary or in small groups, 0.5 mm diam., usually bright yellow. Peridium shining, membranous; dehiscence irregular. Elaters unbranched, long, 3–5 μm diam., yellow, covered with 4–5 spirals, ornamented with long finger-like spines, reaching the diameter of capillitium. Ends distinctly swollen, bearing 1–3 spines. Spores ochraceous-yellow in mass, light yellow in transmitted light, densely verruculose, 12–14 μm diam.

Trichia contorta var. *contorta* is known from many regions of Ukraine; var. *attenuata* (Meyl.) Meyl. was recorded from East Forest-Steppe Region (Leonyev 2006). However, var. *iowensis* was never found in Ukraine before.

****Trichia mirabilis** Nann.-Bremek. (Figs 3.7–8) – six sporocaps on wood of *Carpinus orientalis* L., AV, Elkh-Kaya, mountain *Fagus-Carpinus* forest, mc, 10.10.2008, CWU 2148. Coll. et det. D.V.Leontyev.

Sporocarps and short plasmodiocarps sessile on constricted base, in small groups, 0.5 mm wide and up to 2 mm long. Hypothallus inconspicuous. Peridium double; the outer layer dark brown with darker areas, sometimes almost black; the inner layer thin, translucent. Dehiscence irregular. Elaters ochraceous yellow, very thin, 2.5–2.8 μm diam. and varying in thickness, flexuose, with several low spiral bands. The free ends swollen into a small bulbous thickening with sharp point, which is not longer than diameter of spore. Spores dark olivaceous-yellow in mass, yellow in transmitted light, irregular in shape, densely verrucose, with distinct oil (?) vesicles, 14–15 μm diam. Spore wall is easily seen in optical section as a wide smooth transparent contour of the spore. Plasmodium not seen.

T. mirabilis is known only from several collections from Ural Mts., Sweden and French Alps, so our record is the first for the East of Europe (http//:slimemold.uark.edu). The spore shape and capillitium is the most important delimiting feature of the species, but the dark-brown peridium is also quite characteristic.

Acknowledgements

The authors are deeply grateful to Prof. Uno Elasson (University of Gothenburg, Sweden) for valuable consultations in species identification, and to Ms Eugenia Ostroushko (V.N.Karasin National University of Kharkiv, Ukraine) for collecting some of the specimens.

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Received 18 February 2010, accepted in revised form 16 April 2010.