Ліхенологія

Notes to lichen-forming and lichenicolous fungi in Ukraine II

VALERII VIKTOROVYCH DARMOSTUK
ALEXANDER YEVGENOVYCH KHODOSOVTSEV
ALLA BORYSIVNA GROMAKOVA
OLHA YEVGENIVNA SIRA
DENYS ANATOLIYOVYCH DAVYDOV
LUBOV MYKOLAIVNA GAVRYLENKO
YULIA ANATOLIIVNA KHODOSOVTSEVA

DARMOSTUK V.V., KHODOSOVTSEV A.YE., GROMAKOVA A.B., SIRA O.YE, DAVYDOV D.A., GAVRYLENKO L.M., KHODOSOVTSEVA YU.A. (2021). **Notes to lichen-forming and lichenicolous fungi in Ukraine II.** *Chornomors'k. bot. z.*, **17** (3): 276–295. doi: 10.32999/ksu1990-553X/2021-17-3-6

In this contribution, new data concerning lichen-forming and lichenicolous fungi in Ukraine are presented. It includes new records, exclusions, and confirmations to the Ukrainian administrative regions of taxa in the genera of *Absconditella*, *Alyxoria*, *Arthonia*, *Athelia*, *Briancoppinsia*, *Buellia*, *Buelliella*, *Caloplaca*, *Candelariella*, *Chaenotheca*, *Circinaria*, *Clypeococcum*, *Didymocyrtis*, *Diplotomma*, *Hypocenomyce*, *Lawalreea*, *Lecania*, *Lecidea*, *Lichenochora*, *Lichenoconium*, *Lichenostigma*, *Micarea*, *Monodictys*, *Mycomicrothelia*, *Muellerella*, *Naevia*, *Pachyphiale*, *Parmeliopsis*, *Pertusaria*, *Phaeophyscia*, *Phoma*, *Physcia*, *Physconia*, *Piccolia*, *Placynthiella*, *Polycoccum*, *Polyozosia*, *Porpidia*, *Pronectria*, *Protoparmeliopsis*, *Pseudoschismatomma*, *Punctelia*, *Ramalina*, *Rinodina*, *Sarcopyrenia*, *Sclerophora*, *Sphaerellothecium*, *Staurothele*, *Strangospora*, *Stigmidium*, *Taeniolella*, *Tephromela*, *Thelocarpon*, *Tuckermannopsis*, *Verrucaria*, *Xanthoparmelia*, *Xanthoria*, *Zeroviella*. Among them 24 species of lichen-forming and lichenicolous fungi are new to the Kharkiv region, 13 species new to the Rivne region, 9 species new to the Mykolaiv region, 6 species new to the Kherson region, 3 species new to the Zaporizhzhia region, 3 species new to the Ivano-Frankivsk region, 3 species new to the Ternopil region, 2 species new to the Dnipropetrovsk and Zakarpattia, Chernivtsi and Volyn regions, one species new to the Chernihiv, Khmelnytskyi, Kyiv, Poltava, Sumy regions as well as 5 species new to Autonomous Republic of Crimea.

Keywords: biodiversity, new records, Lawalreea, Muellerella, Phoma

ДАРМОСТУК В.В., ХОДОСОВЦЕВ О.Є., ГРОМАКОВА А.Б., СІРА О.Є., ДАВИДОВ Д.А., ГАВРИЛЕНКО Л.М., ХОДОСОВЦЕВА Ю.А. (2021). **Нотатки до знахідок лишайників та ліхенофільних грибів України II.** *Чорноморськ. бот. ж.*, **17** (3): 276–295. doi: 10.32999/ksu1990-553X/2021-17-3-6

У цьому повідомленні наведено нові дані щодо лишайників та ліхенофільних грибів в Україні. У ньому наведені нові записи, виключення та підтвердження для

[1]W. Szafer Institute of Botany, Polish Academy of Sciences, Lubicz 46, PL-31-512 Krakow, Poland
[2]Kherson State University, 27 Universytetska Str., Kherson, 73000, Ukraine
[3]V.N. Karasin Kharkiv National University, Svobody sq., 4, Kharkiv, 61022, Ukraine
[4]M.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, Tereshchenkivska Str., 2, Kyiv, 01024, Ukraine
[5]National Nature Park "Kam'yanska Sich", Beryslavska Str., 33a, Mylove village, Kherson region, 74351, Ukraine
e-mail: valeriidarmostuk@gmail.com
Submitted 14 November 2021 *Recommended by S. Kondratyuk* *Published 30 December 2021*

адміністративних областей України таксонів з родів *Absconditella, Alyxoria, Arthonia, Athelia, Briancoppinsia, Buellia, Buelliella, Caloplaca, Candelariella, Chaenotheca, Circinaria, Clypeococcum, Didymocyrtis, Diplotomma, Hypocenomyce, Lawalreea, Lecania, Lecidea, Lichenochora, Lichenoconium, Lichenostigma, Micarea, Monodictys, Mycomicrothelia, Muellerella, Naevia, Pachyphiale, Parmeliopsis, Pertusaria, Phaeophyscia, Phoma, Physcia, Physconia, Piccolia, Placynthiella, Polycoccum, Polyozosia, Porpidia, Pronectria, Protoparmeliopsis, Pseudoschismatomma, Punctelia, Ramalina, Rinodina, Sarcopyrenia, Sclerophora, Sphaerellothecium, Staurothele, Strangospora, Stigmidium, Taeniolella, Tephromela, Thelocarpon, Tuckermannopsis, Verrucaria, Xanthoparmelia, Xanthoria, Zeroviella.* З них 24 види лишайників та ліхенофільних грибів є новими для Харківської області, 13 видів – для Рівненської області, 9 – для Миколаївської області, 6 – для Херсонської області, 3 – для Запорізької області, 3 – для Івано-Франківської області, 3 види нових для Тернопільської області, по 2 види нових для Дніпропетровської та Закарпатської, Чернівецької та Волинської областей, по одиному новому виду для Чернігівської, Хмельницької, Київської, Полтавської, Сумської областей та 5 нових видів для Автономної Республіки Крим.

Ключові слова: біорізноманіття, нові знахідки, Lawalreea, Muellerella, Phoma

Дармостук В.В., Ходосовцев А.Е., Громакова А.Б., Серая О.Е., Давыдов Д.А., Гавриленко Л.Н., Ходосовцева Ю.А. (2021). **Заметки о находкам лишайников и лихенофильных грибов Украины II.** *Черноморск. бот. ж.,* **17** (3): 276–295. doi: 10.32999/ksu1990-553X/2021-17-3-6

В этой статье представлены новые данные о лишайниках и лихенофильных грибах в Украине. В ней приводятся новые записи, исключения и подтверждения для административных районов Украины или таксонов из родов *Absconditella, Alyxoria, Arthonia, Athelia, Briancoppinsia, Buellia, Buelliella, Caloplaca, Candelariella, Chaenotheca, Circinaria, Clypeococcum, Didymocyrtis, Diplotomma, Hypocenomyce, Lawalreea, Lecania, Lecidea, Lichenochora, Lichenoconium, Lichenostigma, Micarea, Monodictys, Mycomicrothelia, Muellerella, Naevia, Pachyphiale, Parmeliopsis, Pertusaria, Phaeophyscia, Phoma, Physcia, Physconia, Piccolia, Placynthiella, Polycoccum, Polyozosia, Porpidia, Pronectria, Protoparmeliopsis, Pseudoschismatomma, Punctelia, Ramalina, Rinodina, Sarcopyrenia, Sclerophora, Sphaerellothecium, Staurothele, Strangospora, Stigmidium, Taeniolella, Tephromela, Thelocarpon, Tuckermannopsis, Verrucaria, Xanthoparmelia, Xanthoria, Zeroviella*. Среди них 24 вида лишайников и лихенофильных грибов новые для Харьковской области, 13 видов – для Ровенской области, 9 видов – для Николаевской области, 6 видов – для Херсонской области, 3 вида – для Запорожской области, 3 вида –для Ивано-Франковской области, 3 вида – для Тернопольской области, 2 вида – для Днепропетровской и Закарпатской, Черновецкой и Волынской областей, по одному новому виду для Черниговской, Хмельницкой, Киевской, Полтавской, Сумской областей, а также 5 видов – для Автономной Республики Крым.

Ключевые слова: биоразнообразие, новые находки, Lawalreea, Muellerella, Phoma

This paper continues publications on noteworthy finds of lichens and lichenicolous fungi from different administrative regions of Ukraine [Darmostuk, Khodosovtsev, 2020]. In this series of works we report the results of the analysis of recent collections and the re-evaluation of herbarium specimens. The main aim of this series is providing a substantial contribution to the knowledge of the diversity of lichens and lichenicolous fungi of Ukraine.

Material and methods

The specimens of lichens and lichenicolous fungi were examined by lens (×10) in nature and standard microscope techniques using microscopes Optica-1 and MICROMED-2 in laboratory. Non-collected materials were marked as “non coll.” in the paper. Microscopical examination was done in water and 10% KOH (K). The measurements were made in water with an accuracy of 0.5 μm for ascospores, asci, conidia, conidiogenous cells, conidiophores,

and ascomatal and pycnidial wall cells, and 5 μm for ascomata and pycnidia. The measurements are given as (min–)x–SD – x+SD(–max), where x is the average and SD is the standard deviation. The photographs were taken with a Levenhuk C510 NG camera. We provide morphological features for some taxa that distinguish them from similar species. All examined specimens are deposited in the lichenological herbarium of Kherson State University (KHER), V.N. Karazin Kharkiv National University (CWU) and in the private herbarium of the first author (herb. VD).

Species records

Lichens

ABSCONDITELLA lignicola Vězda & Pisut

This rare epixilic species was reported from a few localities in the Kherson, Kyiv and Zakarpattia regions [KONDRATYUK et al., 2003; VONDRÁK et al., 2010; DYMYTROVA, 2013; KHODOSOVTSEV et al., 2018; MALÍČEK et al., 2018]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Gaidary village, Homilshansky lisy National Nature Park, 49.57802º N 36.31177º E, on dead wood, 3 April 2020, leg. A. Gromakova, V. Darmostuk, O. Sira, det. V. Darmostuk, A. Gromakova (CWU 203420).

ALYXORIA varia (Pers.) Ertz & Tehler

This specimen was published under the name *Opegrapha niveoatra* (Borrer) J.R. Laundon in our previous works [KHODOSOVTSEV et al., 2017a, 2019a]. Revision of the specimen shows that it's *Alyxoria varia*. *Opegrapha niveoatra* should be excluded from the lichen list of the Kherson region.

Specimen examined. Ukraine. Kherson region, Kalanchats'kyi district, park in Rozdolne village, 46.16338º N 33.22862º E, on *Fraxinus* bark, 30 June 2018, leg. & det. V. Darmostuk, A. Khodosovtsev (KHER 10744).

BUELLIA griseovirens (Turner & Borrer ex Sm.) Almb.

This is a rather common species growing mostly on a smooth bark of deciduous trees [KONDRATYUK et al., 1998, 2003; KHODOSOVTSEV et al., 2017a,b, 2018]. New species for the Kharkiv region.

Specimens examined. Ukraine. Kharkiv region, Vovchans'kyi district, near Shestakove village, 50.09017º N 36.61511º E, on *Betula* bark, 26 July 2019, leg. V. Darmostuk, O. Sira, det. V. Darmostuk (herb. VD 364); Zmiivs'kyi district, near Gaidary village, 49.62396º N, 36.28503º E, on *Populus tremula* bark, 3 May 2020, leg. & det. V. Darmostuk, A. Gromakova (CWU 203442); Kharkiv city, Lisopark, 50.05936º N 36.24092º E, on *Fraxinus* bark, 12 December 2020, V. Darmostuk (non coll.).

CALOPLACA monacensis (Leder.) Lettau

This overlooked species is characterized by a granular thallus and mostly pruinose apothecia [ŠOUN et al., 2011]. *Caloplaca monacensis* was reported only from a few localities in the Autonomous Republic of Crimea as well as in the Chernivtsi, Kherson, Mykolaiv and Zakarpattia regions [DYMYTROVA et al., 2013; ŠOUN et al., 2011; KHODOSOVTSEV et al., 2018, 2019b]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Derhachivs'kyi district, near Luzhok village (Mala Danylivka), 50.08484º N 36.11725º E, on *Populus* bark, 20 June 2019, leg. & det. V. Darmostuk (CWU 203010).

CALOPLACA stillicidiorum (Vahl) Lynge Fig. 1A

Probably, *Caloplaca stillicidiorum* is not rare, but overlooked species in Ukraine [OXNER, 1993; KONDRATYUK et al., 2003]. New species for the Kharkiv and Mykolaiv regions.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, Lazukivka village, 49.71504º N 36.42215º E, on plant debris, 17 May 2020, leg. O. Sira, det. V. Darmostuk (herb. VD 860); near Aksiutovka

Station, 49.74894º N 36.33909º E, on plant debris, 7 May 2020, leg. O. Sira, det. V. Darmostuk (herb. VD 869); **Mykolaiv region,** Pervomais'kyi district, near Lviv village, 47.90675 N 31.07981 E, on plant debris, 7 July 2020, leg. & det. V. Darmostuk (herb. VD 741); Snihurivs'kyi district, S of Barativka village, 46.93629º N 32.78831º E, on plant debris, 16 March 2021, leg. & det. V. Darmostuk (herb. VD 998).

CANDELARIELLA efflorescens R.C. Harris & W.R. Buck

This is a common corticolous species in Ukraine, but there is no previous report from the Kharkiv region [PIROGOV, SHOVHAN, 2015; MALÍČEK et al., 2018; KHODOSOVTSEV et al., 2018, 2019b].

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Zidky village, 49.70115º N 36.40724º E, on *Robinia pseudoacacia* bark, 19 December 2019, leg. & det. A. Gromakova (CWU 203400); near Mokhnach village, Mokhnachanskyi Forest Reserve, 49.75569º N 36.52151º E, on *Acer* bark, 25 August 2020, leg. & det. A. Gromakova (CWU 203470).

CANDELARIELLA xanthostigma (Ach.) Lettau

This is a common corticolous species in Ukraine, but there is no previous report from the Rivne region [KONDRATYUK et al., 1998].

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.81674º N 27.07401º E, on *Quercus* bark, 16 May 2019, V. Darmostuk (non coll.).

CHAENOTHECA ferruginea (Turner ex Sm.) Mig.

This is a rare species in the lowland part of Ukraine. In Eastern Ukraine, *Chaenotheca ferruginea* was reported only from the Sumy region [BAIRAK et al., 1998; KHODOSOVTSEV et al., 2017b]. New species for the Kharkiv region.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Gaidary village, 49.60971º N 36.33322º E, Homilshansky lisy National Nature Park, on *Quercus robur* bark, 13 July 2011, leg. & det. A. Gromakova (CWU 202270), *inbidem*, 49.57841º N 36.31598º E, on *Q. robur* bark, 3 April 2020, leg. A. Gromakova, V. Darmostuk, O. Sira, det. A. Gromakova, V. Darmostuk (CWU 203449), near Artuchivka village, 49.73184º N 36.25355º E, on *Q. robur*, 8 October 2016, leg. & det. A. Gromakova (CWU 203512), near Mokhnach village, Mokhnachanskyi Forest Reserve, 49.75641º N 36.52245º E, on *Acer* bark, 25 August 2020, leg. & det. A. Gromakova (CWU 203498).

CIRCINARIA calcarea (L.) A. Nordin, S. Savić et Tibell

This is common calcicolous species in Ukraine, but there is no previous report from the Kharkiv region [OXNER, 2010].

Specimen examined. Ukraine. Kharkiv region, Balakliis'kyi district, near Protopopivka, 49.27583º N 36.91653º E, on limestone, 26 August 2013, leg. & det. A. Gromakova (CWU 202902).

CHAENOTHECA phaeocephala (Turner) Th. Fr.

Chaenotheca phaeocephala is a rare species in the lowland part of Ukraine [NADYEINA, 2009; DYMYTROVA, 2013; KHODOSOVTSEV et al., 2017a, 2019a]. New species for the Rivne region.

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.81674º N 27.07401º E, on *Quercus* bark, 16 May 2019, leg. & det. V. Darmostuk (hb. VD 377a sub *Chaenotheca trichialis*).

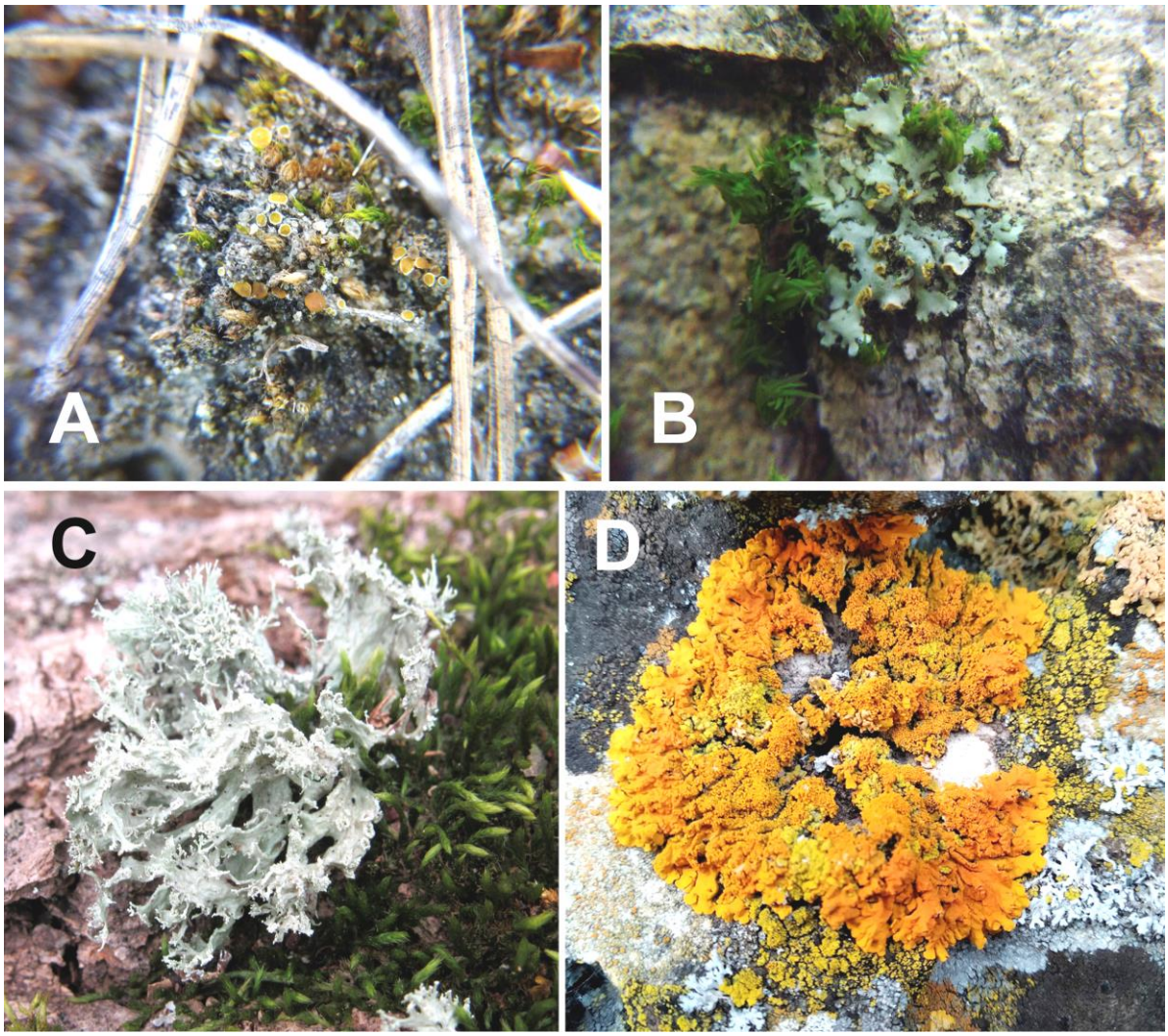

Fig. 1. Selected lichen species: A – *Caloplaca stillicidiorum*, B – *Phaeophyscia endophoenicea*, C – *Ramalina europaea*, D – *Xanthoria mediterranea*.

CHAENOTHECA stemonea (Ach.) Müll. Arg.

There is a second record of this species since 1987 [BAIRAK, 1987]. *Chaenotheca stemonea* is locally frequent in the oak forest of Kharkiv region.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Gaidary village, 49.61083º N 36.33254º E, on *Fraxinus* bark, 27 June 2011, leg. & det. A. Gromakova (CWU 200095); Krasnokuts'kyi district, near Volodymyrivka village, Slobozhanskyi National Natural Park, 50.07871º N 35.26957º E, on *Robinia pseudoacacia* bark, 8 September 2019, leg. & det. A. Gromakova, S. Kovalska (CWU 203041).

CHAENOTHECA trichialis (Ach.) Th. Fr.

This is common corticolous species in Ukraine, but there is no previous report from the Rivne region [KONDRATYUK et al., 1998].

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.81674º N 27.07401º E, on *Quercus* bark, 16 May 2019, leg. & det. V. Darmostuk (hb. VD 377).

DIPLOTOMMA chlorophaeum (Hepp ex Leight.) Szatala

This species is rarely reported in Ukraine on calcareous and siliceous outcrops [OXNER, 2010]. New species for the Mykolaiv region.

Specimen examined. Ukraine. Mykolaiv region, Domanivs'kyi district, near Buzki Porogy village, 47.86544º N 31.11697º E, alt. 64 m, on wet granitic outcrop, 5 July 2020. leg. & det. V. Darmostuk (hb. VD 742).

DIPLOTOMMA hedinii (H. Magn.) P. Clerc & Cl. Roux

This species is common on limestone in Southern Ukraine, but rarely reported from other regions of Ukraine [OXNER, 2010]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Balakliis'kyi district, near Protopopivka, 49.25407º N 36.90435º E, on limestone, 18 May 2014, leg. & det. A. Gromakova (CWU 202926).

HYPOCENOMYCE scalaris (Ach. ex Lilj.) Choisy

This is a common corticolous species in Ukraine, but there is no previous report from the Rivne region [KONDRATYUK et al., 1998].

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.81674º N 27.07401º E, on *Quercus* bark, 16 May 2019, leg. & det. V. Darmostuk (non coll.).

LECANIA turicensis (Hepp) Müll. Arg.

This is an overlooked calcicolous species in Ukraine [KONDRATYUK et al., 2021]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Izyums'kyi district, near Synychyno village, 49.10086º N, 37.37976º E, on limestone, 23.01.2019, 18.05.2014, leg. A. Gromakova, det. A. Gromakova, V. Darmostuk (CWU 202910).

LECIDEA sarcogynoides Körb.

This species was recently reported for Ukraine from the Mykolaiv region [KHODOSOVTSEV, DARMOSTUK, 2020]. We found this species after revision of silicicolous lichens in other regions. It was stored under *Porpidia macrocarpa* in collections from Zaporizhzhia region and it was published in KHODOSOVTSEV, ZAVYALOVA [2008], therefore species needs to be excluded from micobiota of Zaporizhzhia region. *Lecidea sarcogynoides* is a new species for the Dnipropetrovsk and Zaporizhzhia region.

Specimens examined. Ukraine. Dnipropetrovsk region, Apostolivs'kyi district, near Tokivke village, 47.68511º N 33.94261º E, on granite, 3 July 2018, leg. & det. V. Darmostuk (hb. VD 385); **Zaporizhzhia region,** Chernigiv district, Kayinkulak water pool, 47.25351º N 36.0197º E, on granite, 2 October 2007, leg. A. Khodosovtsev, T. Zayvalova, det. A. Khodosovtsev (KHER 4305 as *Porpidia macrocarpa*).

MICAREA denigrata (Fr.) Hedl.

This is a common corticolous species in Ukraine, but there is no previous report from the Rivne region [BAIRAK et al., 1998; KONDRATYUK et al., 2003; KHODOSOVTSEV et al., 2017a].

Specimen examined. Ukraine. Rivne region, Rivnens'kyi district, near Gorodenka village, 50.68388º N 26.19829º E, alt. 191 m, on *Pinus* twig, 17 May 2019, V. Darmostuk (non coll.).

MYCOMICROTHELIA confusa D. Hawksw.

In Ukraine, this species was known from the Lviv region [SHARAVARA, 2014] and Autonomous Republic of Crimea [COPPINS et al., 2001]. New for the lowland part of Ukraine.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Mokhnach village, Mokhnachanskyi Forest Reserve, 49.75639º N 36.52245º E, on *Acer* bark, 25 August 2020, leg. A. Gromakova, det. A. Gromakova, V. Darmostuk (CWU 203492, 203493).

NAEVIA dispersa (Schrad.) Thiyagaraja, Lücking & K.D. Hyde

This is a rather common species mostly found on smooth bark. *Naevia dispersa* was reported from several regions in Ukraine [KONDRATYUK et al., 1998; DARMOSTUK et al., 2017; KHODOSOVTSEV et al., 2019b]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Gaidary village, «Homilshansky lisy» National Nature Park, 49.61118º N 36.32636º E, on *Fraxinus* bark, 25 June 2019, leg. A. Gromakova, V. Darmostuk, O. Sira, det. V. Darmostuk, A. Gromakova (CWU 203009).

PACHYPHIALE fagicola (Hepp) Zwackh

This is an overlooked corticolous species in Ukraine [KONDRATYUK et al., 2021]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Gaidary village, «Homilshansky lisy» National Nature Park, 49.62351º N 36.28491º E, on *Populus tremula* bark, 3 May 2020, leg. & det. A. Gromakova, V. Darmostuk (CWU 203447).

PARMELIOPSIS ambigua (Hoffm.) Nyl.

This is a rarely collected species in the steppe zone of Ukraine. Previously, it was reported only from the Donetsk and Mykolaiv region in Southern Ukraine [OXNER, 1993]. New species for the Kherson region.

Specimen examined. Ukraine. Kherson region, Oleshkivs`kyi district, near Radensk village, 46.56586º N 32.87783º E, on *Pinus* bark, 20 November 2016, leg. & det. V. Darmostuk (KHER 10338).

PERTUSARIA leioplaca (Ach.) DC.

Pertusaria leioplaca is a common species in the Carpathian Mts., and also not rare in forest and forest-steppe zones of Ukraine [BAIRAK et al., 1998; KONDRATYUK et al., 2003; DYMYTROVA, 2013]. New species for the Rivne region.

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.81674º N 27.07401º E, on *Fagus* bark, 16 May 2019, leg. & det. V. Darmostuk (hb. VD 443).

PHAEOPHYSCIA endophoenicea (Harm.) Moberg. Fig. 1B

Distribution of this species in Ukraine is poorly studied. Previously, *Phaeophyscia endophoenicea* was reported only from the Carpathian Mts and Crimea Peninsula [KHODOSOVTSEV, 2000; KONDRATYUK et al., 2003]. New species for the Ivano-Frankivsk, Mykolaiv, Sumy and Ternopil regions.

Specimens examined. Ukraine. Ivano-Frankivsk rigion, Nadvornyans'kyi district, Gorgany Nature Reserve, 48.43036 º N 24.32318º E, on *Fagus* bark, 26 August 2019, leg. & det. V. Darmostuk (KHER 13762); **Mykolaiv region,** Arbuzyns'kyi district, near Kuripchyne village, 47.99213º N 31.02179º E, alt. 54 m, on *Fraxinus* bark, 1 July 2020, leg. & det. V. Darmostuk (hb. VD 763); **Sumy region,** Sums'kyi district, near Vakalivschyna village, 51.03306º N 34.92886º E, on *Fraxinus* bark, 16 July 2020, leg. & det. V. Darmostuk, O. Sira (hb. VD 809, 851); **Ternopil region,** Berezhans'kyi district, near Lisnyky village, Chortiv Stone Landmark, 49.44361º N 24.87111º E, on *Fagus* bark, 9 August 2019, leg. & det. V. Darmostuk, O. Sira (hb. VD 036); Rai village, 49.42886º N 24.90207º E, on *Salix* bark, 19 January 2019, leg. & det. V. Darmostuk, O. Sira (KHER 12524).

PHYSCIA caesia (Hoffm.) Fürnr.

This is a rather common species growing on siliceous and calcicolous substrates [OXNER, 2010]. New species for the Chernihiv region.

Specimen examined. Ukraine. Chernihiv region, Ripkyns'kyi district, near Lovyn village, 51.89087º N 31.18253º E, on a slate of a house roof, 5 June 2021, D. Davydov (non coll., conf. V. Darmostuk).

PHYSCONIA perisidiosa (Erichsen) Moberg

This is a common corticolous species in Ukraine, but there is no previous report from the Kharkiv region [OXNER, 2010].

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Mokhnach village, Mokhnachanskyi Forest Reserve, 49.75541º N 36.52141º E, on *Acer* bark, 25 August 2020, leg. & det. A. Gromakova (CWU 203501).

PICCOLIA ochrophora (Nyl.) Hafellner

This overlooked lichen was reported from a few localities in the Luhansk, Lviv, Mykolaiv, Poltava and Zakarpattia regions [DARMOSTUK et al., 2017; DARMOSTUK, KHODOSOVTSEV, 2021; KONDRATYUK et al., 2021]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Derhachivs'kyi district, near Luzhok village, 50.08313º N 36.10139º E, on *Populus* bark, 30 April 2021, leg. O. Sira, det. V. Darmostuk (KHER 14846).

PLACYNTHIELLA oligotropha (J. R. Laundon) Coppins & P. James

This is rarely reported terricolous species in Ukraine [KAPETS et al., 2015; DARMOSTUK et al., 2017; KHODOSOVTSEV et al., 2016a, 2018]. New species for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Butivka village, 49.70567º N 36.38582º E, on soil, 27 March 2020, leg. & det. V. Darmostuk (herb. VD 463).

POLYOZOSIA persimilis (Th. Fr.) S.Y. Kondr., Lőkös & Farkas

Polyozosia persimilis is a common but overlooked species growing on deciduous bark and twigs. Morphologically, this species are similar to *P. hagenii*, but can be distinguished by scattered apothecia with lecanorine whitish margin (vs apothecia in groups with brownish biatorine margin in *P. persimilis*) [ŚLIWA, 2007]. In Ukraine, this species was reported from a few localities in the Lviv and Sumy regions as well as from Southern Ukraine [KHODOSOVTSEV et al., 2017a, b; OXNER, 2010]. New species for the Kharkiv region.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Butivka village, 49.71487º N 36.38772º E, on *Salix* bark, 27 April 2020, leg. & det. V. Darmostuk (herb. VD 466, 862); Zmiivs'kyi district, near Butivka village, 49.71356º N 36.38103º E, on dead wood, 8 March 2020, leg. V. Darmostuk, A. Gromakova, O. Sira, det. V. Darmostuk, A. Gromakova (CWU 203417).

PSEUDOSCHISMATOMMA rufescens (Pers.) Ertz & Tehler

This specimen was published under the name *Opegrapha niveoatra* (Borrer) J.R. Laundon in our previous work [KHODOSOVTSEV et al., 2019a]. Revision of the specimen shows that it's *Pseudoschismatomma rufescens*. *Opegrapha niveoatra* should be excluded from the lichen list of the Mykolaiv region.

Specimen examined. Ukraine. Mykolaiv region, Voznesens'kyi district, near Trykraty village, 47.70963º N 31.40964º E, on *Fraxinus* bark, 27 May 2017, leg., det. & rev. V. Darmostuk, A. Khodosovtsev (KHER 11510).

PROTOPARMELIOPSIS versicolor (Pers.) M. Choisy

We follow Nimis & Martellos [2021] and separate calcicolous specimens with white pruina on lobes from *Protoparmeliopsis muralis*. This species was cited as *Lecanora muralis* or *Protoparmeliopsis muralis* in the following papers [DARMOSTUK, 2016; KHODOSOVTSEV, 1996, 1999, 2002a, 2002b, 2006a, 2006b; Khodosovtsev et al., 2016b, 2019c].

Specimens examined. Ukraine. Autonomous Repablic of Crimea, Kerch peninsula, Chokrak, coast of Azov Sea, 45.479353º N 36.28717º E, on limestone, 9 July 1996, leg. O. Redchenko, det. A. Khodosovtsev (KHER 6620, 6624 as *P. muralis*); Simpheropol district, Chatyrdag, 1200 m a.s.l., 44.74482º N 34.31945º E, on limestone, 2 October 1999, leg. & det. A. Khodosovtsev (KHER 6613, 6614 as *P. muralis*); Alushta district, Mt Pivdenna Demerdji, 44.75291º N 34.39699º E, on conglomerate, 28 May 2007, leg. & det. A. Khodosovtsev (KHER 3219 as *P. muralis*); **Kherson region**, Velykoolexndrivkyi district, near Zaporizhzhia village, 47.28838º N 33.21358 E, on limestone, 3 May 2018, leg. A. Khodosovtsev, V. Darmostuk, det. A. Khodosovtsev (KHER 11751 as *P. muralis*); near village Mala Olexandrivka, Rusova Balka, 47.26758 N 33.24125 E, on limestone, 12 August 2012, leg. V. Darmostruk, det. A. Khodosovtsev (KHER 9390 as *P. muralis*); Bilozerka district, village Mykylske, left bank of Ingulets river, 46.71361º N 32.82661º E, on limestone, 23 April 1991, leg. & det. A. Khodosovtsev (KHER 6618 as *P. muralis*); Kherson city, "Koloniya Dykyh Krolikiv", 46.67737º N, 32.54968º E, on limestone, 15 July 2000, leg. O. Zvozil, det. A. Khodosovtsev (KHER 6623 as *P. muralis*); near village Antonivka, 46.67535º N 32.78174º E, on limestone, 26 January 1995, leg. & det. A. Khodosovtsev (KHER 6621 as *P. muralis*); *inbidem*, 46.67577º N 32.78324º E, 18 May 1994, leg. & det. A. Khodosovtsev (KHER 9917 as *P. muralis*); Beryslav region, near village Burgunka, Burgunska balka, 46.86219º N 33.21095º E, on limestone, 18 July 2008, leg. A. Khodosovtsev, L. Gavrylenko, det. A. Khodosovtsev (KHER 7740, 7780 as *P. muralis*); village Tyagynka, right bank of Dnipro, 46.76792º N 33.04093º E, on limestone, 22 August 1994, leg. & det. A. Khodosovtsev (KHER 6608, 6610, 6611 as *P. muralis*); same location, 46.81426º N 33.03241º E, on limestone, 27 April 2020, leg. & det. A. Khodosovtsev (non coll.); near village Respublikanets, Kam`yanska Sich National Nature Park, 47.00555º N, 33.65829º E, on limestone, 17 April 2021, A. Khodosovtsev &

Yu. Khodosovtseva (non coll.); cape Pugach, 46.98848º N, 33.65302º E, on limestone, 26 March 2020, A. Khodosovtsev (non coll.).

PORPIDIA contraponenda (Arnold) Knoph & Hertel

The species was reported from Mt Karagach (AR Crimea) [KHODOSOVTSEV, 2004], but specimen from Crimea peninsula (KHER 8052) has well developed grey thallus, K+ yellow and Pd+ orange, naked black apothecia (0.6–1.2 μm diameter) with black exciple in middle part and small ascospores (12–15 × 6–8 μm), K– hypothecium. It is not a character of *P. contraponenda*, and, probably, the specimen refer to *P. crustulata* complex. Recently, we collected two specimens of *P. contraponenda* in Zakarpattia region. The species is hardly distinguished from *P. crustulata*, but whitish thallus vs greyish in *P. crustulata*, large ascospores (up to 16–20 × 6–9 μm vs 14–17 × 4–7 μm in *P. crustulata*) and totally black to dark brown inner exciple in *P. contraponenda* (vs medium brown in *P.* crustulata) can be diagnostic morphological figures. It is a new species for the Zakarpattia region, but this species must be excluded from the list of lichens of Crimea Peninsula.

Specimen examined. Zakarpattia oblast, Rahivskyi district, Mt Svidovets, Carpathian Biosphere Reserve, 1643 m a.s.l., 48.23702º N 24.22952º E, NFD-21-28, on sandstone, 3 August 2021, leg. & det. A. Khodosovtsev (KHER 15021).

PORPIDIA crustulata (Ach.) Hertel & Knoph

This lichen grows on siliceous boulders in mountains, but it is very rare on bark. Specimens were collected at the polonyna border near base of the old beech trees. It has ascospores 13–16 × 6–8 μm, exciple 60–90 μm, apothecia 0.6–1.0 mm, hypothecium K–, thallus K–, Pd–. *Porpidia macrospora* also was reported on bark from this locality [MALÍČEK et al., 2018], but this species has largest ascospores and thick margin.

Specimens examined. Ukraine. Zakarpattia region, Tyachivskyi district, Carpathian Biosphere Reserve, Schyrokyi Luh Massive, Menchul, 48.31091º N 23.69979º E, on *Fagus* roots, 27 May 2019, leg. et det. A. Khodosovtsev (KHER 13858, 13658, 13621, 13355, 13635, 13291, 13621).

PORPIDIA nigrocruenta (Anzi) Diederich & Sérus.

We are follow Jabłońska [2010] and separate *Porpidia nigrocruenta* from *P. macrocarpa*. The species characterized by fine reaction K+ (crimson) in hypothecium (in section). Recently, it species was reported from Ivano-Frankivsk region (Chivchin Mts) [JABŁOŃSKA, 2010]. It is new for the Zakarpattia region.

Specimens examined. Ukraine. Ivano-Frankivsk region, Nadvirnianskyi district, Gorgany Nature Reserve, kvartal 10, forest plot N1, 48.47507º N 24.30680º E, 1010 m a.s.l., 5 May 2015, leg. A. Khodosovtsev, A. Gromakova, V. Darmostuk, det. A. Khodosovtsev (KHER 9140); **Zakarpattia region,** Mt Petros, SW slope, on sandstone, 48.17149º N 24.42272º E, 1950 m a.s.l., 12 June 2016, leg. L. Gavrylenko, det. A. Khodosovtsev (KHER 10640); Velukobereznyanskiy district, Uzhanskiy National Nature Park, 48.97064º N 22.59775º E, 850 m, on sandstone, 4 June 1998, leg. O. Redchenko, det. A. Khodosovtsev (KHER 8051).

PORPIDIA rugosa (Taylor) Coppins & Fryday

The species was reported from Ivano-Frankivsk region [KHODOSOVTSEV et al., 2016a] and Zakarpattia region in old papers [SERVÍT, NÁDVORNÍK, 1936]. Recently, some modern collection was collected from Carpathian Mts. The specimen from Crimea under this name [KHODOSOVTSEV, 2002b] are *Tephromela grumosa* (KHER 868).

Specimens examined. Ukraine. Zakarpattia region, Rahivskyi district, Mt Svidovets, Carpathian Biosphere Reserve, 1674 m a.s.l., 48.23579º N 24.23113º E, NFD 21-24-NW, on sandstone, 3 August 2021, leg. & det. A. Khodosovtsev (KHER 15002); 1600 m a.s.l., 48.23844º N 24.2287º E, NFD-21-29, on sandstone, 3 August 2021, leg. & det. A. Khodosovtsev (KHER 15020); 1643 m a.s.l., 48.23702º 24.22952º, TAB 20-28, on sandstone, 3 August 2021, leg. et det. A. Khodosovtsev (KHER 15020); **Ivano-Frankivsk region,** Nadvirnianskyi district, Nesamovyte lake, 1760 m a.s.l., 48.12175º N, 24.539947º E, NFD 21-20, on sandstone, 5 August 2021, leg. & det. A. Khodosovtsev (KHER 15000).

PORPIDIA soredizodes (Lamy ex Nyl.) J. R. Laundon

The sterile sorediate species is characterized by K+ (yellow) and Pd + (orange) thallus. This species was reporded from the Zakarpattia region [SERVÍT, NÁDVORNÍK, 1936]. It is new for the Ivano-Frankivsk region.

Specimens examined. Ukraine. Zakarpattia region, Rahivskyi district, Mt Svidovets, Carpathian Biosphere Reserve, 1674 m a.s.l., 48.23579º N 24.23113º E, NFD 21-24-NW, on sandstone, 3.08.2021, leg. & det. A. Khodosovtsev (KHER 14997); **Ivano-Frankivsk region,** Nadvirnianskyi district, Nesamovyte lake, 1760 m a.s.l., 48.12175º N, 24.539947º E, NFD 21-20, on sandstone, 5 August 20-21, leg. & det. A. Khodosovtsev (KHER 14998).

PUNCTELIA subrudecta (Nyl.) Krog

Punctelia subrudecta is a common corticolous species in the Western and Northern part of Ukraine [OXNER, 1993]. New species for the Volyn region.

Specimen examined. Ukraine. Volyn region, Shats'kyi district, near Pisochne Lake, 51.56922º N 23.89527º E, on *Quercus*, 14 September 2019, V. Darmostuk (non coll.).

RAMALINA europaea Gasparyan, Sipman & Lücking Fig. 1C

This recently described species is widespread in Ukraine. Previously, it was included in the concept *Ramalina pollinaria* s.lat. *Ramalina europaea* was reported from the Chernivtsi, Kherson and Mykolaiv regions [KHODOSOVTSEV, DARMOSTUK, 2020]. New species for the Kharkiv and Kyiv region.

Specimens examined. Ukraine. Kyiv region, Kyiv city, Holosiyivskyi National Nature Park, Lisnyky Botanical Reserve, 50.29855º N 30.54588º E, on *Fraxinus* bark, 14 April 2021, D. Davydov (non coll., conf. V. Darmostuk); *ibidem*, 17 August 2021, leg. D. Davydov, det. V. Darmostuk (DD, pers. coll.); **Kharkiv region,** Zmiivs'kyi district, N of Vyrishalne village, 49.72499º N 36.35805º E, on *Prunus* bark, 28 April 2020, leg. V. Darmostuk, A. Gromakova, O. Sira, det. V. Darmostuk (CWU 203510), near Mokhnach village, Mokhnachanskyi Forest Reserve, 49.75923º N 36.52933º E, on *Quercus* bark, 20 May 2020, V. Darmostuk (non coll.).

RINODINA pityrea Ropin & H. Mayrhofer

This overlooked lichen was reported from a few localities in several administrative regions of Ukraine [DARMOSTUK, KHODOSOVTSEV, 2014; KHODOSOVTSEV, KHODOSOVTSEVA, 2014; KHODOSOVTSEV et al., 2016a, 2018]. New for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Butivka village, 49.72567º N 36.38574º E, on concrete, 3 May 2020, leg. & det. V. Darmostuk (herb. VD 877).

SCLEROPHORA pallida (Pers.) Y.J. Yao & Spooner

Previously, this rare species was reported mainly from the Carpathian Mts. and only from a few localities in the lowland part of Ukraine [DARMOSTUK, KHODOSOVTSEV, 2021; KONDRATYUK et al., 2021]. New species for the Left-Bank Forest-Steppe of Ukraine.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Mokhnach village, Mokhnachanskyi Forest Reserve, 49.75707º N 36.53002º E, on *Acer* bark, 20 May 2020, leg. & det. V. Darmostuk, A. Gromakova, (CWU 203439, 203448), *ibidem*, 49.75558º N 36.52144º E, on *Acer* bark, 25 August 2020, leg. & det. A. Gromakova (CWU 203467).

STAUROTHELE frustulenta Vain.

This is not rare species in the lowland part of Ukraine [DARMOSTUK, KHODOSOVTSEV, 2020], but there is no previous report from the Kharkiv region

Specimens examined. Ukraine. Kharkiv region, Lozivs'kyi district, near Nadezhdivka village, 49.10493º N 36.58013º E, on siliceous rocks, 11 May 2013, leg. & det. A. Gromakova (CWU 200345), Zmiivs'kyi district, near Gaidary village, 49.61978º N 36.31698º E, on concrete, 10 July 2006, leg. & det. A. Gromakova (CWU 203522), *inbidem*, 49.61994º N 36.31772º E, on concrete, 1 July 2013, leg. & det. A. Gromakova (CWU 203511), near Butivka village, 49.70546º N 36.42114º E, on concrete, 26 March 2020, leg. V. Darmostuk, O. Sira, det. V. Darmostuk (herb. VD 478).

STAUROTHELE rugulosa (A. Massal.) Arnold

Previously, *Staurothele rugulosa* was reported only from the Crimea Peninsula [KHODOSOVTSEV, 2003]. New for the lowland part of Ukraine.

Specimens examined. Ukraine. Kherson region, Beryslavs'kyi district, near Burhunka village, 46.81551º N 33.22626º E, on limestone, 1 June 2017, leg. & det. V. Darmostuk (KHER 12094); Vysokopil's'kyi district, near Natalino village, 47.48087º N 33.26785º E, on limestone, 3 May 2018, leg. & det. V. Darmostuk, A. Khodosovtsev (KHER 14526).

STRANGOSPORA moriformis (Ach.) Stein

Probably, *Strangospora moriformis* is an overlooked lignicolous species reported from a few localities in the Cherkasy, Kyiv, Poltava and Sumy regions [KONDRATYUK et al., 1998; DYMYTROVA, 2013]. New species for the Kharkiv region.

Specimens examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Zidky village, 49.70481º N 36.42161º E, on wood, 4 April 2020, leg. O. Sira, det. V. Darmostuk (herb. VD 484, 488).

TEPHROMELA grumosa (Pers.) Hafellner & Cl. Roux

We check specimens from Crimea and found two specimens of *Tephromela grumosa*. One specimen kept under name *Porpidia glaucophaea* (Korb.) Hertel & Knoph and was published [KHODOSOVTSEV, 2002a]. It is sterile but has thick areolate thallus, character bluish soralia and K+ yellow thallus. It grows together with non sorediate *Tephromela atra* on inclined sandstone boulder. Second specimen was unpublished from Sudak district. *Tephromela grumosa* is a new for Crimea Peninsula, but *Porpidia rugosa* (*=P. glaucophae*) must be removed from lichen list of Crimea Peninsula.

Specimens examined. Ukraine. Autonomous Republic of Crimea, Alushta district, Karabi-Yaila, 44.84141º N 34.46541º E, on sandstone, 2 May 2000, leg. & det. A. Khodosovtsev (KHER 868 as *Porpidia glaucophea*); Sudakskiy region, Sudak, village Dacnhoye, 44.89597º N 35.03143º E, on sandstone, 7 May 2000, leg. & det. A. Khodosovtsev (KHER 2154).

THELOCARPON laureri (Flot.) Nyl.

Thelocarpon laureri is an overlooked ephemeral species growing mostly on lignum. This species was reported from the Kharkiv region only once [BAIRAK et al., 1998].

Specimen examined. Ukraine. Kharkiv region, Zmiivs'kyi district, near Butovka village, 49.71356º N 36.38103º E, on dead wood, 27 March 2020, leg. V. Darmostuk, O. Sira, det. V. Darmostuk (herb. VD 465).

TUCKERMANNOPSIS sepincola (Ehrh.) Hale

KHODOSOVTSEV [1999] reported *Tuckermannopsis sepincola* from one locality in the Kherson region. Later DARMOSTUK [2015] revised the specimen and suggested that it was a poorly developed thallus of *T. chlorophylla*. Here we reported *Tuckermannopsis sepincola* as a new species to the Kherson region.

Specimen examined. Ukraine. Kherson region, Oleshkivs`kyi district, near Nechaevo village, 46.57898º N 32.74145º E, on *Pinus* twig, 12 April 2018, leg. & det. V. Darmostuk, A. Khodosovtsev (KHER 11682).

VERRUCARIA viridula (Schrad.) Ach.

This species is rather common on calcareous substrates in Southern Ukraine and there are a few records from other parts of Ukraine [KHODOSOVTSEV et al., 2019c]. New for the Kharkiv region.

Specimen examined. Ukraine. Kharkiv region, Balakliis'kyi district, near Protopopivka village, 49.25406º N 36.90422º E, on limestone, 18 May 2014, leg. & det. A. Gromakova (CWU 202941).

XANTHOPARMELIA pulla (Ach.) O. Blanco, A. Crespo, Elix, D. Hawksw. & Lumbsch

This is a common silicicolous species in Ukraine, but there is no previous report from the Kharkiv region [OXNER, 1993].

Specimens examined. Ukraine. Kharkiv region, Lozivs'kyi district, near Nadezhdivka village, 49.10493º N 36.58013º E, on siliceous rocks, 1 December 2012, leg. N. Matveeva, det. A. Gromakova (CWU 200282), *inbidem*, 49.10035º N 36.58126º E, on siliceous rocks, 11 May 2013, leg. & det. A. Gromakova (CWU 200343).

XANTHORIA mediterranea Giralt, Nimis & Poelt Fig. 1D

The species is abundant on limestone in the Crimea Peninsula, but rare in continental part Ukraine. It was known from a few location in the Kherson, Odesa and Kharkiv regions [e.g. KHODOSOVTSEV, 1999, GROMAKOVA, 2011]. This is the first report for National Nature Park "Kam'yanska Sich".

Specimen examined. Ukraine. Kherson region, Beryslavskyi region, in front of village Respublicanets, cape Pugach, 46.98848º N 33.65302º E, on limestone, 26 March 2020, A. Khodosovtsev, Yu. Khodosovtseva (non coll.).

ZEROVIELLA papillifera (Vain.) S.Y. Kondr. & Hur

The species includes in the red list of Kherson region and it was found in few locations [KHODOSOVTSEV 1999]. This is the first report for National Nature Park "Kam'yanska Sich".

Specimen examined. Ukraine. Kherson region, Beryslavskyi region, in front of village Respublicanets, cape Pugach, 46.98848º N 33.65302º E, on limestone, 26 March 2020, A. Khodosovtsev, Yu. Khodosovtseva (non coll.).

Lichenicolous fungi

ARTHONIA molendoi (Heufl. ex Frauenf.) R. Sant.

Arthonia molendoi is rarely collected fungus in Ukraine. This species was reported from the Autonomous Republic of Crimea, Kherson and Zaporizhzhia regions [KONDRATYUK et al., 1999; DARMOSTUK et al., 2018; DARMOSTUK, KHODOSOVTSEV, 2020]. New species for the Mykolaiv region.

Specimen examined. Ukraine. Mykolaiv region, Kazankivs'kyi district, N of Marianivka village, 47.62164º N 32.90468º E, on *Caloplaca* sp., on limestone, 8 May 2019, leg. & det. V. Darmostuk (herb. VD 1027).

ATHELIA arachnoidea (Berk.) Jülich

This is a common species in Ukraine, but there is no previous report from the Rivne and Volyn regions [DARMOSTUK, KHODOSOVTSEV, 2017].

Specimens examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, 50.81316º N 27.07466º E, on *Melanohalea exasperatula* (thallus), on *Quercus* bark, 16 May 2019, leg. V. Darmostuk, A. Khodosovtsev, det. V. Darmostuk (herb. VD 436); **Volyn region,** Shats'kyi district, near Pisochne Lake, 51.56922º N 23.89527º E, on *Massjukiella polycarpa*, on *Quercus* bark, 14 September 2019, V. Darmostuk (non coll.).

BRIANCOPPINSIA cytospora (Vouaux) Diederich, Ertz, Lawrey & van den Boom

Briancoppinsia cytospora is a rarely collected species in Ukraine [DARMOSTUK, KHODOSOVTSEV, 2017]. New species for the Ivano-Frankivsk region.

Specimen examined. Ukraine. Ivano-Frankivsk region, Nadvornyans'kyi district, Gorgany Reserve, 48.48978º N 24.27988º E, on *Hypogymnia physodes*, on *Picea* bark, 6 May 2015, leg. V. Darmostuk, A. Khodosovtsev, A. Gromakova, det. V. Darmostuk (KHER 8703).

BUELLIELLA poetschii Hafellner

Previously, this species was reported only from a few localities in the Southern Ukraine [KHODOSOVTSEV et al., 2009]. New species for the Mykolaiv and Ternopil regions.

Specimens examined. Ukraine. Mykolaiv region, Novyi Bug district, near Rozanivka village, "Pryinhylskyi" Regional Landscape Park, 47.79475º N 32.37981º E, alt. 62 m, on *Endocarpon psorodeum* (thallus), on granite stone, 28.05.2017, leg. & det. V. Darmostuk, A. Khodosovtsev (KHER 11188); **Ternopil**

region, Buchats'kyi district, near Perevoloka village, 49.11804º N 25.35212º E, on *Endocarpon* sp., on limestone, 17 May 2019, leg. V. Darmostuk, A. Khodosovtsev, det. A. Khodosovtsev (KHER 14653).

CLYPEOCOCCUM cladonema (Wedd.) D. Hawksw.

Clypeococcum cladonema was reported from a few localities in the Kherson, Kyiv and Mykolaiv regions on *Cetraria islandica* and *Xanthoparmelia pokornyi* [DARMOSTUK, KHODOSOVTSEV, 2017, 2020]. New species for the Rivne region.

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, 50.82623º N 27.03135º E, on *Xanthoparmelia pulla* (thallus), on gratine stone, 16 May 2019, leg. & det. V. Darmostuk, A. Khodosovtsev (KHER 14361).

DIDYMOCYRTIS cladoniicola (Diederich, Kocourk. & Etayo) Ertz & Diederich

Didymocyrtis cladoniicola is a common species in Ukraine, but there are no previous records from the Crimea Peninsula [DARMOSTUK, KHODOSOVTSEV, 2017, 2020; DARMOSTUK, 2021].

Specimen examined. Ukraine. Autonomous Republic of Crimea, near Heneralske village, Karabi Yaila, 44.79542º N 34.48038º E, on *Circinaria fruticulosa*, on soil, 2 May 2000, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 11699).

DIDYMOCYRTIS epiphyscia Ertz & Diederich s.lat.

This fungus is a poorly known species in Ukraine. Previously, it was reported from several localities in the Autonomous Republic of Crimea, Kharkiv and Kherson regions [DARMOSTUK, KHODOSOVTSEV, 2017; DARMOSTUK, 2021]. New species for the Mykolaiv and Poltava regions.

Specimens examined. Ukraine. Mykolaiv region, Arbuzyns'kyi district, near Kuripchyne village, 47.99213º N 31.02179º E, alt. 54 m, on *Physcia adscendens*, on *Prunus* twig, 01.07.2020. leg. & det. V. Darmostuk (hb. VD 743); Pervomaisk district, near Romanova Balka village, 47.93663º N 31.04437º E, alt. 54 m, on *Physcia stellaris*, on *Prunus* twig, 05.07.2020. leg. & det. V. Darmostuk (hb. VD 718); **Poltava region,** Semenivs'kyi district, Narizzia village, 49.73013º N 32.79794º E, on *Xanthoria parietina* (apothecia), on *Malus* bark, 3 May 2016, leg. V. Darmostuk, A. Khodosovtsev, det. V. Darmostuk (KHER 9761).

DIDYMOCYRTIS melanelixiae (Brackel) Diederich, R.C. Harris & Etayo

Examined specimen has broadly ellipsoid hyaline conidia mostly with one guttule (4.2–)4.4–4.8(–5.0) × (2.8–)3.0–3.2(–3.6) µm, 1/b (1.2–)1.3–1.6(–1.7) (n=30) and fits well to the description in ERTZ et al. [2015]. *Didymocyrtis melanelixiae* was reported from several Parmeliaceae species in Europe, North and South America [ERTZ et al., 2015]. In Ukraine, this species was known on *Melanelixia glabratula* and *Platismatia glauca* from the Zakarpattia region [DARMOSTUK, 2018; DARMOSTUK et al., 2021]. New species for the Rivne region.

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, 50.81316º N 27.07466º E, on *Melanohalea exasperatula* (thallus), on *Quercus* bark, 16 May 2019, leg. V. Darmostuk, A. Khodosovtsev, det. V. Darmostuk (herb. VD 437).

HETEROCEPHALACRIA physciacearum (Diederich) Millanes & Wedin

Probably, this species is rarely collected fungus in Ukraine. It was reported from the Sumy, Kherson and Zhytomyr regions [KHODOSOVTSEV, DARMOSTUK, 2017; KHODOSOVTSEV et al., 2018; KAPETS, KONDRATYUK, 2019]. New species for the Autonomous Republic of Crimea.

Specimen examined. Ukraine. Autonomous Republic of Crimea, Yalta, Ushan-Su, 44.49271º N 34.09222º E, on *Hyperphyscia* sp., on *Acer* bark, 3 May 2006, leg. A. Khodosovtsev, Yu. Khodosovtseva, det. V. Darmostuk (KHER 7203).

LAWALREEA cf. lecanorae Diederich Fig. 2

Our specimen is characterized by immersed globose conidiomata 80–110 μm, conidiomata wall hyaline in the lower part and greenish in the ostiolar part, ampuliform conidiogenous cells 8–10 ×4–5.5 μm and 0-septate hyaline, ellipsoid, slightly curved conidia (8.8–)9.2–11.0(–11.6) × (4.0–)4.2–5.2(–5.6) μm, 1/b (1.8–)1.9–2.4(–2.7) (n=20).

Lawalreea lecanorae was described by Diederich (1990) on *Polyozosia persimilis*. The author reported a green conidiomata wall in the upper part and ellipsoid conidia (5–)5.5–6.5(–7.5) μm. ZHURBENKO & NOTOV [2015] reported *Lawalreea* cf. *lecanorae* from *Myriolecis hagenii* and their specimen differed in having larger conidia, 8.1–9.9 × 3.0–3.6 μm, with pycnidia pale brown lower part and medium brown upper part with a greenish gray hue. HALDEMAN [2021] reported this species on *Polyozosia dispersa* from the USA. Their specimen has hyaline conidiomata wall, olive green in the ostiolar part and conidia 9.0–11.1 × 2.9–4.1 μm (n=10). Our specimen has much wider conidia that previously was reported. In Ukraine, it was recently reported from the Kherson region [DARMOSTUK, KHODOSOVTSEV, 2019]. New species for the Zaporizhzhia region.

Specimen examined. Ukraine. Zaporizhzhia region, Melitopol's'kyi district, near Terpinnya village, 46.95033º N 35.46956º E, on *Polyozosia dispersa* (apothecia), on granite stone, 28 June 2018, leg. V. Darmostuk, A. Khodosovtsev, det. V. Darmostuk (KHER 14708).

LICHENOCHORA obscuroides (Linds.) Triebel & Rambold

This species is common in the forest and forest-steppe zone of Ukraine [KAPETS, KONDRATYUK, 2019; DARMOSTUK, SIRA, 2020; DARMOSTUK, 2021], but rarely reported in the steppe zone [DARMOSTUK, KHODOSOVTSEV, 2020]. New species for the Kherson region.

Specimen examined. Ukraine. Kherson region, Velykooleksandrivs'kyi district, near Zaporizhzhya village, Popova Yama Landmark, 47.29148º N 33.23829º E, on *Phaeophyscia orbicularis* (thallus), on *Ulmus* bark, 11 April 2021, leg. O. Sira, det. V. Darmostuk (KHER 14723).

LICHENOCONIUM erodens M.S. Christ. & D. Hawksw.

This is a common species in Ukraine, but there is no previous report from the Rivne region [DARMOSTUK, 2019].

Specimens examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, 50.81316º N 27.07466º E, on *Evernia prunastri* and *Flavoparmelia caperata* (thallus), on *Quercus* bark, 16 May 2019, leg. V. Darmostuk, A. Khodosovtsev, det. V. Darmostuk (herb. VD 374, 438).

LICHENOSTIGMA cosmopolites Hafellner & Calatayud

This is a common species in Ukraine, but there is no previous report from the Rivne region [DARMOSTUK, KHODOSOVTSEV, 2017].

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, 50.82623º N 27.03135º E, on *Xanthoparmelia conspersa* (thallus), on granite stone, 16 May 2019, leg. V. Darmostuk, A. Khodosovtsev, det. V. Darmostuk (herb. VD 379).

LICHENOSTIGMA gracile Calat., Nav.-Ros. & Hafellner

Lichenostigma gracile is a rare lichenicolous fungi growing on *Acarospora fuscata*. In Ukraine, it was reported from a few localities in the Carpathians Mts. and Southern Ukraine [DARMOSTUK, KHODOSOVTSEV, 2017; KHODOSOVTSEV et al., 2019b]. New species for the Zaporizhzhia region.

Specimen examined. Ukraine. Zaporizhzhia region, Melitopol's'kyi district, near Terpinnya village, historical and archaeological reserve Kamyana Mohyla, 46.95028º N 35.46988º E, on *Acarospora fuscata*, on sandstone, 4 October 2007, leg. A. Khodosovtsev, T. Zavyalova, det. V. Darmostuk (KHER 14235).

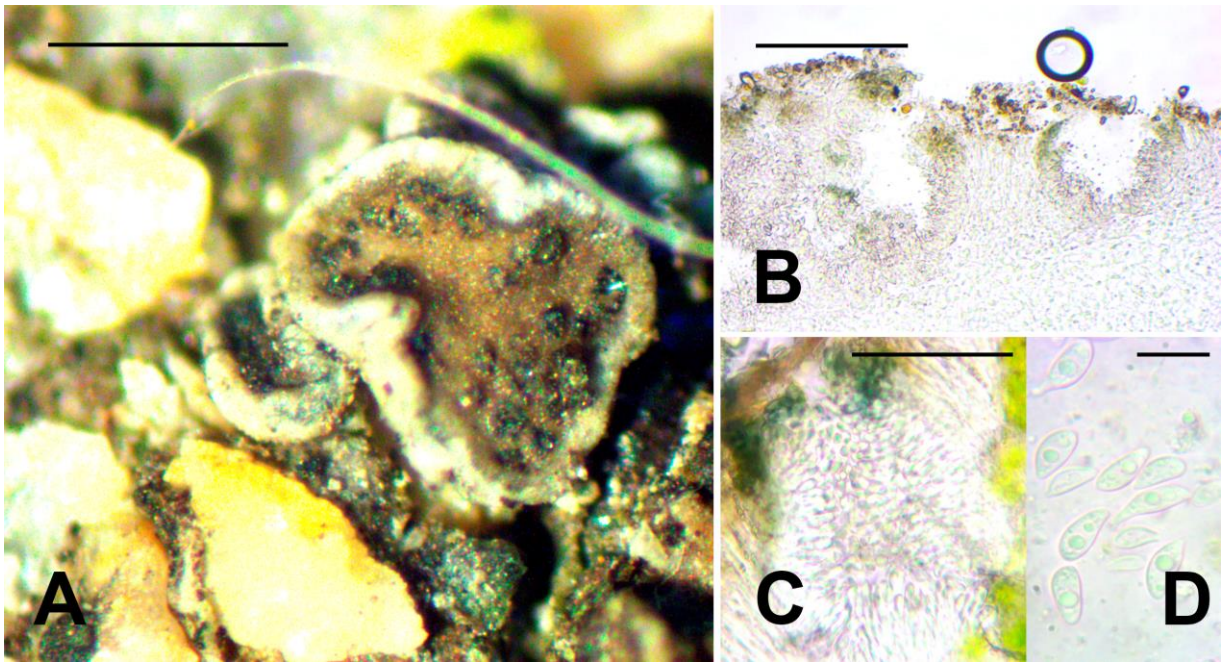

Fig. 2. *Lawalreea* cf. *lecanorae* (KHER 14708): A – infected apothecia of host; B, C – cross-section of the conidiomata; D – conidia. Scale bar: A – mm, B – 100 µm, C – 50 µm, D – 10 µm.

MONODICTYS epilepraria Kukwa & Diederich

This hyphomycetes was reported from the Ternopil, Zakarpattia and Zhytomyr regions of different *Lepraria* species [VONDRÁK et al., 2010; KAPETS, KONDRATYUK, 2019; DARMOSTUK, SIRA, 2020]. New species for the steppe zone of Ukraine.

Specimen examined. Ukraine. Zaporizhzhia region, Melitopol's'kyi district, near Terpinnya village, historical and archaeological reserve "Kamyana Mohyla", 46.95028º N 35.46988º E, on *Lepraria* sp., on sandstone, 4 October 2007, leg. A. Khodosovtsev, T. Zavyalova, det. V. Darmostuk (KHER 14235).

MUELLERELLA erratica (A. Massal.) Hafellner & Volk. John

This species is rarely reported in Ukraine probably due to confusion with *Muellerella pygmaea* or *M. lichenicola*. Previously, this species was reported from the Zhytomyr region [KAPETS, KONDRATYUK, 2019]. New species for the Autonomous Republic of Crimea, Kherson and Mykolaiv regions.

Specimens examined. Ukraine. Autonomous Republic of Crimea, Tarkhankut peninsula, 45.40524º N 32.52884º E, on *Aspicilia* sp., on limestone, 15 August 1995, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 10306 as *M. lichenicola* in KHODOSOVTSEV 1999); **Kherson region,** Beryslavs'kyi district, near Burhunka village, 46.79192º N 33.23014º E, on *Aspicilia* sp., on limestone, 27 October 1993, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 2062); *ibidem*, 1 June 2017, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 12133); Bilozers'kyi district, near Poniativka village, 46.72653º N 32.85960º E, on *Athallia inconnexa*, on limestone, 9 August 2008, leg. A. Khodosovtsev, L. Gavrylenko, det. V. Darmostuk (KHER 7582); Novovorontsovs'kyi district, near Havrylivka village, 47.20451º N 33.83680º E, on *A. inconnexa*, on limestone, 30 May 2018, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 11628); Velykooleksandrivs'kyi district, Mala Olexandrivka village, 47.29384º N 33.27475º E, on *Acarospora cervina*, on limestone, 12 October 2008, leg. A. Khodosovtsev, G. Naumovych, det. V. Darmostuk (KHER 9463 as *M. lichenicola* in NAUMOVYCH, DARMOSTUK 2015); Vysokopil's'kyi district, near Nataliino village, 47.48087º N 33.26785º E, on *Pyrenodesmia variabilis*, on limestone, 5 May 2018, leg. A. Khodosovtsev, V. Darmostuk, det. V. Darmostuk (KHER 11704); **Mykolaiv region,** Snihurivs'kyi district, near Evgenivka village, 47.07618º N 32.90475º E, on *Acarospora cervina*, on limestone, 25 September 2008, leg. A. Khodosovtsev, G. Naumovych, det. V. Darmostuk (KHER 9443, 9446 both as *M. lichenicola* in NAUMOVYCH, DARMOSTUK 2015); near Novovasylivka village, 47.01166º N 32.79936º E, on *Circinaria contorta*, on limestone, 12 May 2018, leg. A. Khodosovtsev, V. Darmostuk, det. V. Darmostuk (KHER 12472).

MUELLERELLA hospitans Stizenb.

This species is rare in Ukraine and it was reported only from the Autonomous Republic of Crimea and Zakarpattia region [KHODOSOVTSEV, 2000; KUKWA, 2000]. New species for the Chernivtsi region.

Specimen examined. Ukraine. Chernivtsi region, Sokyryans'kyi district, near Korman village, Khotynskyi National Nature Park Khotynskyi, 48.57023º N 27.18512º E, on *Bacidia fraxinea* (thallus and apothecia), on *Fraxinus* bark, 19 May 2019, leg. & det. V. Darmostuk (KHER 14675).

POLYCOCCUM pulvinatum (Eitner) R. Sant.

Polycoccum pulvinatum is a widespread species in Ukraine which was reported from a few administrative regions [DARMOSTUK, KHODOSOVTSEV, 2017, 2020]. New species for the Autonomous Republic of Crimea.

Specimen examined. Ukraine. Autonomous Republic of Crimea, Yalta, Livadia, 44.46651º N 34.14897º E, on *Physcia aipolia* (thallus), on *Pistacia mutica* bark, 29 April 2006, leg. A. Khodosovtsev, Yu. Khodosovtseva, det. A. Khodosovtsev (KHER 7202).

PHOMA candelariellae Z. Kocakaya & Halıcı

Phoma candelariellae was described on *Candelariella aurella* from Turkey [KOCAKAYA et al., 2015]. Current taxonomic position of this species is still unresolved due to the lack of molecular data. In Ukraine, it was recently reported from the Zhytomyr region [KONDRATYUK et al., 2020], but probably this fungus is a more common. New species for the Kherson and Mykolaiv regions.

Specimens examined (all on *Candelariella aurella*). Ukraine. Kherson region, Beryslavs'kyi district, near Tiahynka village, 46.75421º N 33.04958º E, on limestone, 31 April 2017, leg. & det. V. Darmostuk (KHER 11604); Bilozers'kyi district, near Olexandrivka village, 46.67836º N 32.12792º E, on concrete, 9 Janurary 2018, leg. & det. V. Darmostuk (KHER 11326, 11327, 11328, 11384); Chaplyns'kyi district, 10 km W from Askania-Nova village, 46.46274º N 33.77177º E, on concrete, 15 November 2006, leg. & det. A. Khodosovtsev (KHER 3169, 3183); Kakhovs'kyi district, 4.5 km W from Zaozerne village, 46.58982º N 33.81592º E, on concrete, 15 November 2006, leg. & det. A. Khodosovtsev (KHER 3181, 3184); Khersons'ka city council, right bank of Viriovchyna river, 46.66804º N 32.55691º E, on concrete, 24 September 2006, leg. & det. A. Khodosovtsev (KHER 3162); Velykooleksandrivs'kyi district, Mala Olexandrivka village, 47.29533º N 33.27510º E, on concrete, 29 September 2018, leg. & det. V. Darmostuk (KHER 12167); **Mykolaiv region,** Kazankivs'kyi district, near Granitne village, 47.97101º N 32.79841º E, on granite stone, 8 May 2019, leg. & det. V. Darmostuk (herb. VD 1028); near Novoskelevatka village, 48.01333º N 32.95541º E, on granite stone, 8 May 2019, leg. & det. V. Darmostuk (herb. VD 117); Ochakivs'kyi district, near Parutyne village, 46.68969º N 31.90484º E, on concrete, 27 Murch 1999, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 6883 sub *Lecanora crenulata*); Berezan Island, 46.59911º N 31.41165º E, on concrete, 20 June 2018, leg. & det. V. Darmostuk (KHER 11678).

PRONECTRIA leptaleae (J. Steiner) Lowen

This is a common species in the forest-steppe zone of Ukraine growth exclusively on apothecia of *Physcia stellaris* [DARMOSTUK, KHODOSOVTSEV, 2017; KAPETS, KONDRATYUK, 2019; DARMOSTUK, SIRA, 2020; DARMOSTUK, 2021]. New species for the Kharkiv and Khmelnytskyi regions.

Specimens examined (all on *Physcia stellaris*). Ukraine. Kharkiv region, Bohodukhivs'kyi district, near Zaryabynka village, 50.22899º N 35.53112º E, on *Salix* twig, 3 May 2021, leg. & det. V. Darmostuk, O. Sira (KHER 14813); **Khmelnytskyi region,** Shepetivs'kyi district, near Maliovanka village, 50.17838º N 27.33769º E, on *Quercus* twig, 10 May 2018, leg. & det. V. Darmostuk, A. Khodosovtsev (KHER 11635).

SARCOPYRENIA cylindrospora (P. Crouan & H. Crouan) M.B. Aguirre

Sarcopyrenia cylindrospora was known in Ukraine only from the Zaporizhzhia region [KHODOSOVTSEV, ZAVYALOVA, 2008]. New species for the forest-steppe zone of Ukraine.

Specimen examined. Ukraine. Ternopil region, Kremenets'kyi district, near city Kremenets, W exposition, 50.11893º N 25.72616º E, on *Aspicilia* sp., on limestone, 17 May 2019, leg. & det. A. Khodosovtsev (KHER 14602).

SPHAERELLOTHECIUM aculeatae Khodos., Gavrylenko & Klymenko

Sphaerellothecium aculeatae was recently described from the Lower Dnipro sand in the Kherson region [Khodosovtsev et al., 2016c, 2018a]. This is the first record of this species outside the type habitat. New species for the Mykolaiv region.

Specimen examined. Ukraine. Mykolaiv region, Pervomaisk district, near Romanova Balka village, 47.93663º N 31.04437º E, alt. 54 m, on *Cetraria aculeata*, on soil, 5 July 2020, leg. & det. V. Darmostuk (hb. VD 718).

STIGMIDIUM microspilum (Körb.) D. Hawksw.

Previously, this fungus was reported from the Ternopil and Zakarpattia regions [DARMOSTUK, KHODOSOVTSEV, 2017]. New species for the Rivne region.

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.81674º N 27.07401º E, on *Graphis scripta*, on *Fagus* bark, 16 May 2019, V. Darmostuk (non coll.).

STIGMIDIUM tabacinae (Arnold) Triebel

Stigmidium tabacinae was reported only from the Khmelnytskyi region [BIELCZYK et al., 2005]. New species for the steppe zone of Ukraine.

Specimen examined. Ukraine. Dnipropetrovsk region, Novomoskovs'kyi district, near Spaske village, 48.66482º N 35.00381º E, on *Toninia* sp., on soil, 13 September 2020, leg. A. Khodosovtsev, det. V. Darmostuk (KHER 14517).

STIGMIDIUM xanthoparmeliarum Hafellner

This fungus can be frequently found in habitats with *Xanthoparmelia conspersa* [DARMOSTUK, KHODOSOVTSEV, 2017, 2020]. New species for the Rivne region.

Specimen examined. Ukraine. Rivne region, Bereznivs'kyi district, near Gubkiv village, Nadsluchanskyi Regional Landscape Park, 50.82623º N 27.04099º E, on *Xanthoparmelia conspersa*, on silicolous stone, 16 May 2019, V. Darmostuk (non coll.).

TAENIOLELLA delicata M.S. Christ. & D. Hawksw.

This species can grow on different lichens and is probably widespread, but rarely collected in Ukraine [DARMOSTUK, KHODOSOVTSEV, 2017; DARMOSTUK et al., 2018]. New species for the Chernivtsi region.

Specimen examined. Ukraine. Chernivtsi region, Sokyryans'kyi district, near Korman village, Khotynskyi National Nature Park, 48.57023º N 27.18512º E, on *Bacidia fraxinea* (thallus and apothecia), on *Fraxinus* bark, 19 May 2019, leg. & det. V. Darmostuk (KHER 14676).

Acknowledgements

The authors are grateful to Anna Kuzemko, Ivan Moysiyenko, Olesya Bezsmertna, Olga Chusova, Oksana Kucher, Vladyslav Artamonov, Daria Shyriaeva, Denys Vynokurov for help during field expedition. The study of VD and AK was financially supported by several projects of Ministry of Science and Education of Ukraine (0116U004735 and 0119U000105), as well as National Research Foundation of Ukraine (project № 2020.01/0140) for AK.

References

BAIRAK O.M. (1987). Lichens of Homilshanskyi Governmental Nature Park. *Ukr. Bot. J.*, **44** (4): 38–42.

BAIRAK O.M., GAPON S.V., LEVANERS A.A. (1998). *Non-vascular plants of the Left-Bank Forest-Steppe of Ukraine (soil algae, lichens, mosses)*. Poltava: Verstka, 160 p.

BIELCZYK U.R., BYLIŃSKA E., CZARNOTA P., CZYŻEWSKA K., GUZOW-KRZEMIŃSKA B., HACHUŁKA M., KISZKA J., KOWALEWSKA A., KRZEWICKA B., KUKWA M., LEŚNIAŃSKI G., ŚLIWA L., ZALEWSKA A. (2005). Contribution to the knowledge of lichens and lichecolous fungi of western Ukraine. *Polish Botanical Journal*, **50** (1): 39–64.

COPPINS B.J., KONDRATYUK S.Y., KHODOSOVTSEV A.YE., WOLSELEY P.A., ZELENKO S.D. (2001). New for Crimea and Ukraine species of the lichens. *Ukr. Bot. J.*, **58** (6): 716–722.

DARMOSTUK V.V. (2015). The southernmost locality *Tuckermanopsis chlorophylla* (Willd.) Hale in Ukraine. *Chornomors'k. bot. z.*, **11** (2): 230–233. doi: 10.14255/2308-9628/15.112/8

DARMOSTUK V.V. (2016). Lichens and lichenicolous fungi of the Rusova beam (Velykooleksandrivka district, Kherson region). *Studia Biologica*, **10** (2): 133–140. doi: 10.30970/sbi.1002.472

DARMOSTUK V.V. (2018). The new records of lichenicolous fungi from Ukrainian Carpathians. *Chornomors'k. bot. z.*, **14** (2), 173–179. doi: 10.14255/2308-9628/18.142/7

DARMOSTUK V.V. (2019). The genus *Lichenoconium* (Lichenoconiaceae, Ascomycota) in Ukraine. *Ukr. Bot. J.*, **76** (2): 101–113. doi: 10.15407/ukrbotj76.02.101

DARMOSTUK V.V. (2021). *Pronectria gromakovae*, a new lichenicolous fungus on *Lecanora populicola* and notes on other records from Kharkiv region (Ukraine). *Lindbergia*, **44** (1): linbg.01141. doi: 10.25227/linbg.01141

DARMOSTUK V.V., KHODOSOVTSEV A.YE. (2014). Lichens and lichenicolous fungi Kalmius department of Ukrainian Steppe Reserve. *Chornomors'k. bot. z.*, **10** (3): 322–327. doi: 10.14255/2308-9628/14.101/4

DARMOSTUK V.V., KHODOSOVTSEV A.YE. (2017). Lichenicolous fungi of Ukraine: An annotated checklist. *Studies in Fungi*, **2** (1): 138–156. doi: 10.5943/sif/2/1/16

DARMOSTUK V.V., KHODOSOVTSEV A.YE. (2019). *Epibryon kondratyukii* sp. nov., a new algicolous fungus, and notes on rare lichenicolous fungi collected in Southern Ukraine. *Folia Cryptogamica Estonica*, **56**: 109–116. doi: 10.12697/fce.2019.56.11

DARMOSTUK V.V., KHODOSOVTSEV A.YE. (2020). Notes to lichen-forming and lichenicolous fungi in Ukraine I. *Chornomors'k. bot. z.*, **16** (3): 257–274. doi: 10.32999/ksu1990553X/2020-16-3-6

DARMOSTUK V.V., KHODOSOVTSEV A.YE. (2021). Old artificial parks as a key spot of corticolous lichen diversity in Southern Ukraine. *Chornomors'k. bot. z.,* **17** (2): 148–163. doi: 10.32999/ksu1990-553X/2021-17-2-5

DARMOSTUK V.V., SIRA O.YE. (2020). New and remarkable records of lichenicolous fungi from Ternopil Oblast (Ukraine). *Czech Mycology*, **72** (1): 33–41. doi: 10.33585/cmy.72103

DARMOSTUK V.V., KHODOSOVTSEV A.YE., KHODOSOVTSEVA YU.A. (2017). Lichens and lichenicolous fungi of National Nature Parks «Nyzhnosulsky» and «Pyryatynsky». *Odesa National University Herald. Biology*, **22** (2(41)): 9–20. doi: 10.18524/2077-1746.2017.2(41).90082

DARMOSTUK V.V., KHODOSOVTSEV A.YE., NAUMOVICH G.O., KHARECHKO N.V. (2018). *Roselliniella lecideae* sp. nov. and other interesting lichenicolous fungi from the Northern Black Sea region (Ukraine). *Turkish Journal of Botany*, **42** (3), 354–361. doi: 10.3906/bot-1709-5

DARMOSTUK V.V., KHODOSOVTSEV A.YE., VONDRÁK J., SIRA O.YE. (2021). New and noteworthy lichenicolous and bryophylous fungi from the Ukrainian Carpathians. *Folia Cryptogamica Estonica*, **58**: 19–24. doi: 10.12697/fce.2020.58.02

DIEDERICH P. (1990). New or interesting lichenicolous fungi 1. Species from Luxembourg. *Mycotaxon*, **37**: 297–330.

DYMYTROVA L. (2013). Lichens of the Lisnyky Botanical Preserve (Kyiv, Ukraine) and their indicator values. *Ukr. Bot. J.*, **70** (4): 522–534.

DYMYTROVA L., NADYEINA O., NAUMOVYCH A., KELLER C., SCHEIDEGGER C. (2013). Primeval beech forests of Ukrainian Carpathians are sanctuaries for rare and endangered epiphytic lichens. *Herzogia*, **26** (1): 73–89. doi: 10.13158/heia.26.1.2013.73

ERTZ D., DIEDERICH P., LAWREY J.D., BERGER F., FREEBURY C.E., COPPINS B., GARDIENNET A., HAFELLNER J. (2015). Phylogenetic insights resolve Dacampiaceae (Pleosporales) as polyphyletic: *Didymocyrtis* (Pleosporales, Phaeosphaeriaceae) with *Phoma*-like anamorphs resurrected and segregated from *Polycoccum* (Trypetheliales, Polycoccaceae fam. nov.). *Fungal Diversity*, **74** (1), 53–89. doi: 10.1007/s13225-015-0345-6

GROMAKOVA A.B. (2011). Lichens of Botanical Reserve "Volchanskiy" (Kharkov region, Ukraine). *The Journal of V.N.Karazin Kharkiv National University. Series: Biology*, **13** (947): 57–62.

HALDEMAN M. (2021). New and interesting records of lichens, lichenicolous fungi and other Ascomycota from northwestern USA III. *Evansia*, **37** (3): 71–80. doi: 10.1639/0747-9859-37.3.71

JABŁOŃSKA A. (2010). The lichen genus *Porpidia* in Poland III. *Herzogia*, **23** (2): 217–228. doi: 10.13158/heia.23.2.2010.217

KAPETS N.V., KONDRATYUK S.Y. (2019). New data on lichenicolous fungi of the Teteriv River Basin (Ukraine). *Acta Botanica Hungarica*, **61** (1–2): 45–54. doi: 10.1556/034.61.2019.1-2.6

KAPETS N.V., PLESKACH L.YU., POPOVA L.P., FEDORENKO N.M., LITOVYNSKA A.V., SHERSHOVA N.V., KONDRATYUK S.Y. (2015). New to Ukraine and rare species of lichen-forming and lichenicolous fungi. *Ukr. Bot. J.*, **72** (2): 156–163. doi: 10.15407/ukrbotj72.02.156

KHODOSOVTSEV A.YE. (1996). Lichens on ancient monuments of 'Olvia' archaeological reservation. *Ukr. Bot. J.*, **53** (1–2): 146–150.

KHODOSOVTSEV A.Ye. (1999). *Lichens of the Black Sea steppes of Ukraine*. Kyiv: Phytosociocentre, 236 p.

KHODOSOVTSEV A.YE. (2000). A new for Crimea and Ukraine species of the lichens. *Ukr. Bot. J.*, **57** (5): 612–615.

KHODOSOVTSEV A.YE. (2002a). Ecological indexes of the saxicolous lichens of Karabi-Yaila (Crimea AR, Ukraine). *Pryrodnychyy Almanakh. Seriya: Biolohichni Nauky*, **2** (3): 225–239.

KHODOSOVTSEV A.YE. (2002b). Lichens of karst outcrops of Chatyr Dag (Crimea). *Bot. Journ.*, **87** (1): 46–56.

KHODOSOVTSEV A.YE. (2003). A new for Crimea and Ukraine species of the lichens from siliceous outcrops. *Ukr. Bot. J.*, **60** (1): 70–78.

KHODOSOVTSEV A.YE. (2004). *Lichens of rocky outcrops of the Crimean peninsula* [D.S.]. M.G. Kholodny Institute of Botany.

KHODOSOVTSEV A.YE. (2006a). Annotated list of lichens of the Karantyp nature reserve. *Proceedings of the Nikitsky Botanical Garden - National Science Center*, **128**: 216–221.

KHODOSOVTSEV A.YE. (2006b). Annotated list of lichens of the Opuk nature reserve. *Proceedings of the Nikitsky Botanical Garden - National Science Center*, **126**: 89–94.

KHODOSOVTSEV A.YE., DARMOSTUK V.V. (2017). New for Ukraine records of lichenicolous fungi. *Ukrainian Botanical Journal*, **74** (2): 177–183. doi: 10.15407/ukrbotj74.02.177

KHODOSOVTSEV A.YE., DARMOSTUK V.V. (2020). Records of lichen species new for Ukraine from steppe habitats of the country. *Botanica Serbica*, **44** (2): 243–250. doi: 10.2298/BOTSERB2002243K

KHODOSOVTSEV A.YE., KHODOSOVTSEVA YU.A. (2014). Lichens and lichenicolous fungi of the arboretum F.E. Falz-Fein Biosphere Reserve of "Askania-Nova". *Chornomorski Botanical Journal*, **10** (4): 515–526. doi: 10.14255/2308-9628/14.104/6

KHODOSOVTSEV A.YE., ZAVYALOVA T.V. (2008). The lichenological zoning of the rocks outcrops of the Kayinkulak river shores (Zaporozhskaya oblast, Chernigovsky district). *Visnyk of Odessa National University. Biology*, **13**(16): 56–60.

KHODOSOVTSEV A.YE., DARMOSTUK V.V., NAZARCHUK YU.S. (2016b). Lichens and lichenicolous fungi of the Regional Landscape Park «Tiligulskiy» (Odessa region, Ukraine). *Chornomors'k. bot. z.*, **12** (2): 165–177. doi: 10.14255/2308-9628/16.122/6

KHODOSOVTSEV A.YE., DARMOSTUK V.V., PANCHENKO S.M. (2017b). Lichens of Desniansko-Starogutsky National Nature Park. *Chornomors'k. bot. z.*, **13** (1): 72–86. doi: 10.14255/2308-9628/17.131/6

KHODOSOVTSEV A.YE., GAVRYLENKO L.M., KLYMENKO V.M. (2016c). *Katherinomyces cetrariae* gen. et sp. nov. (Asexual Ascomycota) and *Sphaerellothecium aculeatae* sp. nov. (Mycosphaerellaceae), new lichenicolous fungi on *Cetraria aculeata* in Ukraine. *Nova Hedwigia*, **103** (1): 47–55. doi: 10.1127/nova_hedwigia/2016/0333

KHODOSOVTSEV A.YE, DARMOSTUK V.V., KHODOSOVTSEVA YU.A. (2017c). The lichens and lichenicolous fungi of National Nature Park «Biloberezhzhya Svyatoslava». *Chornomors'k. bot. z.*, **13** (3): 324–332. doi: 10.14255/2308-9628/17.133/7

KHODOSOVTSEV A.YE., DARMOSTUK V.V., DIDUKH Y.P., PYLYPENKO I.O. (2019c). Verrucario viridulae-Staurotheletum hymenogoniae, a new calcicolous lichen community as a component of petrophytic grassland habitats in the Northern Black Sea region. *Mediterranean Botany*, **40** (1): 21–32. doi: 10.5209/MBOT.62891

KHODOSOVTSEV A.YE., DARMOSTUK V.V., GROMAKOVA A.B., SHPILCHAK M.B. (2016a). A first contribution to lichens and lichenicolous fungi of the Nature Reserve "Gorgany" (Ukraine). *Chornomors'k. bot. z.*, **12** (1): 51–63. doi: 10.14255/2308-9628/16.121/5

KHODOSOVTSEV A.YE., DARMOSTUK V.V., KHODOSOVTSEVA YA.A., GAYCHENYA YU.V. (2019b). The lichens and lichenicolous fungi of Trykraty granite massive (Ukraine). *Chornomors'k. bot. z.*, **15** (1): 54–68. doi: 10.32999/ksu1990-553X/2019-15-1-6

KHODOSOVTSEV A.YE., DARMOSTUK V.V., KHODOSOVTSEVA YA.A., NAUMOVICH G.O., MALIUGA N.G. (2018). The lichens and lichenicolous fungi of the Chalbasy arena in Lower Dnipro sand dunes (Kherson region). *Chornomors'k. bot. z.*, **14** (1), 69–90. doi: 10.14255/2308-9628/18.141/6

KHODOSOVTSEV A.YE., NAUMOVICH G.O., ELIX J.A., KONDRATYUK S.Y. (2009). *Lecanora panticapaensis* sp. nova and *Buelliella poetshii*, two noteworthy species from Ukraine. *Bibliotheca Lichenologica*, **100**: 189–197.

KHODOSOVTSEV A.YE., MALIUGA N.G., DARMOSTUK V.V., KHODOSOVTSEVA YA.A., KLYMENKO V.M. (2017a). The corticolous Physcietea lichen communities in the old parks of Kherson region (Ukraine). *Chornomors'k. bot. z.*, **13** (3), 481–515. doi: 10.14255/2308-9628/17.134/6

KHODOSOVTSEV A.YE., MOYSIYENKO I.I., BOIKO M.F., KUNTZ B., MELNYK R.P., ZAGORODNYUK N.V., DARMOSTUK V.V., ZAKHAROVA M.YA., KLYMENKO V.M., DAYNEKO P.M., MALYUGA N.G. (2019a). *Ancient forgotten parks of Kherson region*. Kherson, Publishing House: Helvetica, 300 p.

KOCAKAYA Z., HALICI M.G., KOCAKAYA M. (2015). *Phoma candelariellae* sp. nov., a lichenicolous fungus from Turkey. *Mycotaxon*, **130**: 1185–1189. doi: 10.5248/130.1185

KONDRATYUK S.Y., KHODOSOVTSEV A.YE., ZELENKO S.D. (1998). *The second checklist of lichen forming, lichenicolous and allied fungi of Ukraine*. Kyiv: Phytosociocentre, 180 p.

KONDRATYUK S.Y., POPOVA L.P., KHODOSOVTSEV A.YE., LŐKÖS L., FEDORENKO N.M., KAPETS N.V. (2021). The fourth checklist of Ukrainian lichen-forming and lichenicolous fungi with analysis of current additions. *Acta Botanica Hungarica*, **63** (1–2): 97–163. doi: 10.1556/034.63.2021.1-2.8

KONDRATYUK S.Y., POPOVA L.P., LACKOVICOVA A., PIŠÚT I. (2003). *A catalogue of the Eastern Carpathian Lichens*. Kyiv: M.H. Kholodny Institute of Botany, 263 p.

KONDRATYUK S.Y., UPRETI D.K., MISHRA G.K., NAYAKA S., INGLE K.K., ORLOV O.O., KONDRATIUK A.S., LŐKÖS L., FARKAS E., WOO J.-J., HUR J.-S. (2020). New and noteworthy lichen-forming and lichenicolous fungi 10. *Acta Botanica Hungarica*, **62** (1–2): 69–108. doi: 10.1556/034.62.2020.1-2.6

KONDRATYUK S.YU., ANDRIANOVA T.V., TYKHONENKO YU.YU. (1999). *Study of mycobiota diversity of Ukraine (Lichenicolous, Septoria and Puccinia fungi)*. Kyiv: Phytosociocentre, 110 p.

KUKWA M. (2000). Some new and noteworthy lichenicolous fungi to Ukraine. *Fragmenta Floristica et Geobotanica*, **45** (1): 532–534.

MALÍČEK J., PALICE Z., ACTON A., BERGER F., BOUDA F., SANDERSON N., VONDRÁK J. (2018). Uholka primeval forest in the Ukrainian Carpathians – a keynote area for diversity of forest lichens in Europe. *Herzogia*, **31** (1): 140–171. doi: 10.13158/099.031.0110

NADYEINA O. (2009). The lichen-forming and lichenicolous fungi of the Donetsk Upland (Ukraine). *Mycologia Balcanica*, **6**: 37–53.

NIMIS P.L., MARTELLOS S. (2021). ITALIC - The Information System on Italian Lichens. Version 6.0. *University of Trieste, Dept. of Biology, http://dryades.units.it/italic*.

OXNER A.M. (1993). *Flora of the lichens of Ukraine. Vol. 2 issue 2*. Kyiv: Nauk. dumka, 542 p.

OXNER A.M. (2010). *Flora of the lichens of Ukraine. Vol. 2 issue 3*. Kyiv: Nauk. dumka, 662 p.

PIROGOV M.V., SHOVHAN YU. (2015). Notes on the lichen biota of National Nature Park "Pivnichne Podilla". *Visnyk of the Lviv University. Series Biology*, **69**: 93–101.

SERVÍT M., NÁDVORNÍK J. (1936). Flechten aus der Čechoslovakei. V. Karpathorussland. *Věstn. Král. Čes. Spol. Nauk., Tř. Mat.–Přír.*: 1–24.

SHARAVARA S.M. (2014). Preliminary results of the study of lichen biota of NNP "Skolivski Beskydy". In: *Youth and Progress of Biology: Book of Abstracts of X International Scientific Conference for Students and PhD Students (Lviv, 8 – 11 April 2014)*:77–78.

ŚLIWA L. (2007). A revision of the *Lecanora dispersa* complex in North America. *Polish Botanical Journal*, **52** (1): 1–70.

ŠOUN J., VONDRÁK J., SØCHTING U., HROUZEK P., KHODOSOVTSEV A., ARUP U. (2011). Taxonomy and phylogeny of the *Caloplaca cerina* group in Europe. *The Lichenologist*, **43** (2): 113–135. doi: 10.1017/S0024282910000721

VONDRÁK J., PALICE Z., KHODOSOVTSEV A.YE., POSTOYALKIN S. (2010). Additions to the diversity of rare or overlooked lichens and lichenicolous fungi in Ukrainian Carpathians. *Chornomors'k. bot. z.*, **6** (1): 6–34.

ZHURBENKO M.P., NOTOV A. (2015). The lichenicolous lichen *Placocarpus americanus* and some noteworthy lichenicolous fungi from Russia. *Folia Cryptogamica Estonica*, **52**: 95–99. doi: 10.12697/fce.2015.52.12