

New or interesting records of lichenicolous fungi from Poland V. Species mainly on *Cladonia*

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Abstract: KUKWA, M. & KOWALEWSKA, M. 2007. New or interesting records of lichenicolous fungi from Poland V. Species mainly on *Cladonia*. – *Herzogia* 20: 199–207.

Records of 20 species of lichenicolous fungi and lichens are presented, four of which, *Abrothallus cladoniae*, *Cladoniicola stauropora*, *Lichenocodium lichenicola* and *Roseliniella cladoniae*, are new to Poland. *Cladonia monomorpha* is a new host for *Epicladonia stenospora*, *Lichenosticta alcicornaria* and *Syzygospora bachmannii*, as is *Physcia stellaris* for *Lichenocodium lichenicola*. The lichenicolous behaviour of *Micarea denigrata* is probably reported for the first time.

Zusammenfassung: KUKWA, M. & KOWALEWSKA, A. 2007. Neue oder interessante Funde lichenicoler Pilze aus Polen V. Arten hauptsächlich auf *Cladonia*. – *Herzogia* 20: 199–207.

Funde von 20 lichenicolen Pilzen und Flechten werden vorgestellt. *Abrothallus cladoniae*, *Cladoniicola stauropora*, *Lichenocodium lichenicola* und *Roseliniella cladoniae* sind Neufunde für Polen. *Cladonia monomorpha* ist ein neuer Wirt für *Epicladonia stenospora*, *Lichenosticta alcicornaria* und *Syzygospora bachmannii* sowie *Physcia stellaris* für *Lichenocodium lichenicola*. Über das lichenicole Auftreten von *Micarea denigrata* wird erstmals berichtet.

Key words: Ascomycetes, basidiomycetes, mitosporic fungi, lichens, biodiversity.

Introduction

Cladonia P.Browne nom. cons. is one of the largest lichen genera. To date, c. 80 lichenicolous fungi have been reported from its thalli, with many taxa restricted to *Cladonia* species (ZHURBENKO & ALSTRUP 2004). In Poland, *Cladonia* is represented by 72 species and many infraspecific taxa (FAŁTYNOWICZ 2003, KOWALEWSKA & KUKWA 2004), but relatively few records of lichenicolous fungi growing on them have been reported from the country (cf. FAŁTYNOWICZ 2003, KUKWA 2004, KUKWA & CZARNOTA 2006).

Based on fieldwork and a revision of herbarium material of the *Cladonia chlorophaea* group, *C. rangiferina*, *C. rei*, *C. stygia* and *C. subulata*, a significant number of specimens were found to be infested by lichenicolous fungi. This study, the fifth in a series presenting distributional data on lichenicolous fungi in Poland (see KUKWA et al. 2002, KUKWA 2004, 2005, KUKWA & CZARNOTA 2006), is devoted to fungi found on *Cladonia*, as well as some interesting species found on other hosts. Details of new localities for 20 taxa, four of them new to Poland, are provided.

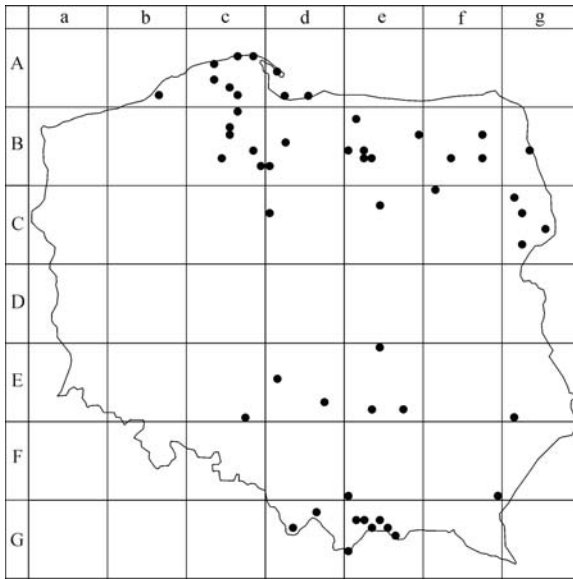


Fig. 1: Localities of the species in Poland based on the ATPOL grid square system.

Material and methods

Specimens were determined by the authors with the aid of the following literature: ZHURBENKO & ALSTRUP (2004), COPPINS (1983), DIEDERICH (1990, 1996), DIEDERICH et al. (2001), HAWKSWORTH (1981, 1983), COLE & HAWKSWORTH (2004), KOCOURKOVÁ (2000), SANTESSON & TØNSBERG (1994) and ZHURBENKO & TRIEBEL (2003). Representative material has been deposited in the lichen herbaria GPN, UGDA, KTC, KRAM, KRA, LOD, OLTC and POZ. All localities are provided with geographical coordinates based on the ATPOL grid square system as in KUKWA et al. (2002), KUKWA (2004, 2005) and KUKWA & CZARNOTA (2006) (Fig. 1).

The species

Abrothallus bertianus De Not.

In Poland reported only from the Tatra Mts (ALSTRUP & OLECH 1996).

Host – *Melanelixia subaurifera* (thallus).

SPECIMEN EXAMINED. [Ge-33] – Pieniny Mts, Trzy Korony Mt., 49°25'01"N/20°25'18"E, on *Alnus* sp., 04.05.1956, J. Nowak s.n. (KRAM-L-967, specimen of *Pertusaria albescens*).

Abrothallus caerulescens I.Kotte

Third locality in Poland (FAŁTYNOWICZ 2003, KUKWA & CZARNOTA 2006), but the first low-land record in the country.

Host – *Xanthoparmelia conspersa* (thallus).

SPECIMEN EXAMINED. [Ce-24] – Kamień village, 53°07'10"N/20°41'30"E, on stone, 09.1999, M. Kołakowska (UGDA-L-12551).

Abrothallus cladoniae R.Sant. & D.Hawksw.

New to Poland.

Host – *Cladonia chlorophaea* s.l. (podetia).

SPECIMEN EXAMINED. [Be–52] – Olsztyn Dajtki town, on soil, 14.12.2004, D. Kubiak s.n. (OLTC-L, specimen of *C. chlorophaea* s.l.).

Arthrorhaphis aeruginosa R.Sant. & Tønsberg

Although only reported for the first time for Poland in 2004, it appears to be common and widespread fungus (see KUKWA & CZARNOTA 2006 and literature cited therein).

Hosts – *Cladonia chlorophaea* (squamules), *C. glauca* (squamules), *C. macilenta* subsp. *macilenta* (squamules), *C. merochlorophaea* (squamules & podetia), *C. ochrochlora* (squamules), *C. pyxidata* (squamules), *C. subulata* (squamules), *C. sp.* (squamules & podetia).

SPECIMENS EXAMINED. [Ac–36] – Białogóra forest district, forest section No. 91, 3 km W of Białogóra village, 54°48'N/17°57'E, on *C. glauca*, *C. merochlorophaea*, *C. ochrochlora* and *C. sp.* growing on birch, 31.08.2000, 16.10.2000 & 27.08.2000, A. Kowalewska s.n. (UGDA-L–13251, 13253, 13256 & 13257). Forest section No. 28c, 2 km NW of Białogóra village, 54°48'N/17°57'E, on *C. merochlorophaea* growing on birch, 24.08.2000, A. Kowalewska s.n. (UGDA-L–13255). [Ac–86] – Kurze Grzędy nature reserve, forest section No. 133b, 54°33'N/17°58'E, on *C. sp.* growing on *Sorbus aucuparia*, 05.05.2005, M. Kukwa 4015 (UGDA-L–11446). [Ad–51] – E of Hel town, 54°36'18"N/18°48'57"E, on *C. sp.* growing on pine, 12.02.2005, M. Kukwa 3754 (UGDA-L–12094). [Bc–25] – 1 km NE of Szudron village, 54°02'00"N/17°53'45", on *C. sp.* growing on birch, 03.06.2002, A. Kowalewska s.n. (UGDA-L–13313). 1 km S of Schodno village, 54°03'N/17°51'E, on *C. merochlorophaea* growing on birch, 18.06.2002, A. Kowalewska s.n. (UGDA-L–13306). 1.5 km S of Schodno village, 54°03'N/17°51'E, on *C. sp.* growing on birch, 20.09.2002, A. Kowalewska s.n. (UGDA-L–13295). [Bc–79] – Czersk Świecki forest district, forest section No. 173a, 1 km E of Czersk Świecki village, 53°32'44"N/18°27'22"E, on *C. macilenta* subsp. *macilenta* growing on birch, 15.10.2001, A. Kowalewska s.n. (UGDA-L–13338). Dąbrowa forest district, forest section No. 208b, 3 km NE of Jeżewo village, 53°30'N/18°28'E, on *C. macilenta* subsp. *macilenta* growing on birch, 17.08.2001, A. Kowalewska s.n. (UGDA-L–13321). Kwiatki forest district, forest section No. 52a, 4 km SW of Lipinki village, 53°37'N/18°28'E, on *C. grayi* growing on birch, 22.08.2002, A. Kowalewska s.n. (UGDA-L–13344). [Bd–42] – Lisewo forest district, forest section No. 191, 53°53'10"N/18°59'40"E, on *C. cf. ochrochlora* growing on birch, 10.04.2004, M. Kukwa 3019 (UGDA-L–10678). [Bd–70] – Dąbrowa forest district, forest section No. 299a, 4 km NE of Jeżewo village, 53°30'N/18°28'E, on *C. merochlorophaea* growing on birch, 19.08.2001, A. Kowalewska s.n. (UGDA-L–13322, specimen of *Taenioella beschiana*). [Be–63] – Nowe Ramuki forest district, forest section No. 88, 53°38'N/20°28'E, on *C. sp.* growing on wood, 20.04.1999, D. Kubiak s.n. (OLTC-L). [Ee–04] – Galki village near Przysuchy village, 51°22'N/22°37'E, on *C. chlorophaea* on soil, 22.05.1974, K. Czyżewska s.n. (LOD-L–3427, specimen of *C. chlorophaea*). [Fe–90] – Pcim village, Działy settlement, alt. ca 650 m, 49°45'N/19°58'E, on *C. subulata* growing on soil, 23.07.1996, J. Nowak s.n. (KRAM-L–42861, specimen of *C. subulata*). [Gd–16] – Hala Jodłowcowa, alt. ca 1200 m, on *C. pyxidata* growing on beech, 11.09.1964, J. Nowak s.n. (KRAM-L–16738, specimen of *C. pyxidata*). [Ge–21] – Gorce Mts, Średniak glade, 49°32'N/20°11'E, alt. 1050 m, on *C. pyxidata* growing on humus, 08.09.1964, K. Glanc s.n. (KRAM-L–28643, specimen of *C. pyxidata*). [Ge–24] – Będzikówka village, alt. 890 m, 49°31'N/20°33'E, on *C. cf. pyxidata* growing on soil, 06.08.1990, L. Śliwa s.n. (KRA, specimen of *C. cf. pyxidata*). [Ge–34] – Kamień św. Kingi rock, alt. ca 1000 m, 49°26'N/20°33'E, on *C. sp.* growing on rocks, 31.08.1990, L. Śliwa s.n. (KRA, specimen of *C. sp.*).

Cercidospora epipolytropia (Mudd) Arnold

First lowland locality in Poland (cf. KUKWA & CZARNOTA 2006).

Host – *Lecanora polytropia* (apothecia).

SPECIMEN EXAMINED. [Bc–06] – Kamienne Kręgi nature reserve, 54°13'00"N/17°50'21"E, on stone, 16.06.2006, M. Kukwa s.n. (UGDA-L–12986).

Cladoniicola staurospora Diederich, P.Boom & Aptroot

New to Poland.

Host – *Cladonia cf. fimbriata* (squamules & podetia).

SPECIMEN EXAMINED. [Ad–82] – N of Gdańsk Świbno town, Mewia Łacha nature reserve, 54°19'N/18°55'E, on sandy soil, 28.10.1999, K. Jando, M. Kukwa s.n. (UGDA-L–13381).

Cornutispora lichenicola D.Hawksw. & B.Sutton

Rather rare in Poland, previously reported from only five localities (KUKWA & CZARNOTA 2006 and literature cited therein).

Host – *Cladonia* sp. (squamules).

SPECIMEN EXAMINED. [Ac-75] – W of Linia village, by N part of Białe Błoto peat bog, 54°28'48"N/17°53'09"E, on oak, 04.11.2004, M. Kukwa 3644 (UGDA-L-12365).

Diploschistes muscorum (Scop.) R.Sant.

A not uncommon species in Poland (FAŁTYNOWICZ 2003).

Hosts – *Cladonia pyxidata*, *C. subulata*, *C. sp.* (in all cases on squamules).

SPECIMENS EXAMINED. [Bf-67] – Grzędy nature reserve, 53°36'10"N/22°51'43"E, on *C. subulata* growing on soil, 20.06.1984, K. Czyżewska s.n. (LOD-L-7217). [Ee-83] – Chęciny town, 50°43'50"N/20°26'43"E, on *C. sp.* growing on soil, 08.1889, F. Błoński s.n. (KRAM-L-4661, specimen of *C. sp.*). [Ge-22] – Gorce Mts, S slope of Twarogi Mt., 49°31'N/20°22'E, alt. c. 800 m, on *C. pyxidata* growing on ground, 09.09.1960, K. Glanc s.n. (KRAM-L-28640, specimen of *C. pyxidata*). [Ge-34] – Wietrzne Dziury, 49°26'N/20°33'E, alt. 1000 m, on *C. cf. pyxidata* growing on soil, 21.07.1990, L. Śliwa s.n. (KRA, specimen of *C. cf. pyxidata*).

Epicladonia sandstedei (Zopf) D.Hawksw.

More frequent in Poland than previous records would suggest (FAŁTYNOWICZ 2003 and literature cited therein, KUKWA & CZARNOTA 2006 and literature cited therein).

Hosts – *Cladonia grayi*, *C. merochlorophaea*, *C. novochlorophaea*, *C. rei* (podetia & squamules).

SPECIMENS EXAMINED. [Ab-86] – Słowińskie Błota nature reserve, 1.5 km NW of Słowino village, 54°20'53"N 16°30'23"E, on *C. grayi* growing on plant remnants, 08.2005, J. Herbich, M. Herbichowa s.n. (UGDA-L-11845). [Ac-63] – Czarne Bagno nature reserve, near Żelazkowo village, 54°32'N/17°35'E, on *C. grayi* growing on peat, 22.07.2004, M. Herbichowa s.n. (UGDA-L-11139). [Bc-25] – Węsków Bagna range, 54°02'N/17°52'E, on *C. novochlorophaea* growing on soil, 12.09.2002, A. Kowalewska s.n. (UGDA-L-7744, specimen of *Roselliniella cladoniae*). Grzybowski Młyn forest district, forest section No. 365b, 1 km NE of Szludron village, 54°02'00"N/17°53'45"E, on *C. merochlorophaea* growing on birch, 15.09.2002, A. Kowalewska s.n. (UGDA-L-13309). N of Szludron village, 54°02'00"N/17°53'45"E, on *C. merochlorophaea* growing on birch, 19.06.2002, A. Kowalewska s.n. (UGDA-L-13305). Węsków Bagna range, 54°02'N/17°52'E, on *C. novochlorophaea* growing on soil, 12.09.2002, A. Kowalewska s.n. (UGDA-L-7744, specimen of *Roselliniella cladoniae*). [Be-62] – Las Warmiński nature reserve, 53°46'29"N/20°25'18"E, on *C. grayi* growing on soil, 09.2004, D. Kubiak s.n. (OLT-C-L, specimen of *C. grayi*). [Bf-63] – 3.5 km E of Biała Piska village, 53°36'N/22°04'E, on *C. rei* growing on soil, 26.08.1990, S. Cieśliński s.n. (KTC, specimen of *C. rei*).

Epicladonia stenospora (Harm.) D.Hawksw.

Previously known from only one locality in Poland (KUKWA 2004). *Cladonia monomorpha* is a new host for the species.

Hosts – *Cladonia monomorpha*, *C. cf. pyxidata* s.l.

SPECIMEN EXAMINED. [Ge-60] – Tatra Mts, Skoruśniak Mt., 49°12'N/20°03'E, on soil, 14.07.1922, s.coll. (KRAM-L-476, specimen of *C. monomorpha*). Poorly localized specimen: Kielichówka village, on *C. cf. pyxidata* s.l., 19th century, s.coll. (KRAM-L-20855, specimen of *C. cf. pyxidata* s.l.).

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

Although common, it was previously not reported on *Cladonia* from Poland (KUKWA et al. 2002, KUKWA 2004, 2005, KUKWA & CZARNOTA 2006).

Hosts – *Cladonia cornuta* (podetia), *C. glauca* (squamules and podetia), *C. gracilis* (podetia), *C. macilenta* s.str. (squamules), *C. uncialis* (podetia), *C. sp.* (podetia).

SPECIMENS EXAMINED. [**Ac-75**] – W of Linia village, by N part of Białe Błoto peat bog, 54°28'48"N/17°53'09"E, on *C. sp.* growing on oak, 04.11.2004, M. Kukwa 3644 (UGDA-L-12365, specimen of *Comutispora lichenicola*). [**Ac-86**] – Stanisławskie Błoto nature reserve, forest section No. 210d, 54°22'13"N/18°00'23"E, on *C. macilenta* s.str. on birch, 07.07.1983, W. Faltynowicz s.n. (UGDA-L-13147, specimen of *Fuscidea pusilla*). [**Ad-51**] – Wydmy Helskie nature reserve, forest sections Nos 255/256, 54°39'30"N/18°46'01"E, on *C. uncialis* growing on soil, 15.10.2006, M. Kukwa 5379, (UGDA, specimen of *C. uncialis*). [**Bc-25**] – Węsków Bagna range, 54°02'N/17°52'E, on *C. gracilis* growing on soil, 12.09.2002, A. Kowalewska s.n. (UGDA-L-7750). [**Bc-35**] – Lubnia forest district, forest section No. 309d, 2.5 km NE of Lubnia village, 53°55'N/17°45'E, on *C. cornuta* growing on birch, 05.07.2003, A. Kowalewska s.n. (UGDA-L-13285, specimen of *Lichenocodium pyxidatae*). [**Bc-79**] – Dąbrowa forest district, forest section No. 208b, 3 km NE of Jeżewo village, 53°30'N/18°28'E, on *C. macilenta* s.str. growing on birch, 17.08.2001, A. Kowalewska s.n. (UGDA-L-13321, specimen of *Arthrurhaphis aeruginosa*). [**Bd-70**] – Dąbrowa forest district, forest section No. 298f, 2 km SW of Buśnia village, 53°32'00"N/18°34'00"E, on *C. glauca* growing on birch, 12.10.2001, A. Kowalewska s.n. (UGDA-L-13336).

Lichenocodium lichenicola (P.Karst.) Petr. & Syd.

New to Poland. *Physcia stellaris* would appear to be a new host for the taxon.

The specimen found agrees in all respects with the characters given by HAWKSWORTH (1981) and COLE & HAWKSWORTH (2004), except in respect of the pycnidia, which were smaller (c. 75–140 µm) than previously reported (100–200 µm), probably due to the infections being relatively young; furthermore, it is rare and therefore only limited material has been studied.

Host – *Physcia stellaris* (thallus & apothecial margin)

SPECIMENS EXAMINED. [**Ad-51**] – Helskie Wydmy nature reserve, Jastarnia forest division, forest section No. 252a, 54°39.268'N/18°46.433'E, on branch of poplar, 15.10.2006, M. Kukwa 5351a (UGDA).

Lichenocodium pyxidatae (Oudem.) Petr. & Syd.

A rather common species in Poland; previously thought to be rare, but clearly overlooked.

Hosts – *Cladonia chlorophaea* s.l., *C. cornuta*, *C. fimbriata*, *C. gracilis*, *C. macilenta* s.str., *C. merochlorophaea*, *C. ochrochlora*, *C. pyxidata*, *C. rei* (in all cases on podetia).

SPECIMENS EXAMINED. [**Ac-36**] – Białogóra forest district, forest section No. 92ax, 3 km W of Białogóra on *C. ochrochlora* growing on birch, 26.08.2000, A. Kowalewska s.n. (UGDA-L-13252 & 13254). [**Ad-51**] – Helskie Wydmy nature reserve, Jastarnia forest division, forest section No. 257a, 54°39.987'N/18°45.355'E, on *C. chlorophaea* s.l. on sand, 16.10.2006, R. Afranowicz, M. Kukwa, K. Żółkoś s.n. (UGDA-L-). [**Bc-25**] – Grzybowski Młyn forest district, forest section No. 356a, S of Loryniec, 54°02'30"N/17°53'30"E, on *C. ochrochlora* growing on birch, 18.07.2002, A. Kowalewska s.n. (UGDA-L-13316). Forest section No. 366b, 0.5 km NE of Szludron village, 54°02'00"N/17°53'45"E, on *C. gracilis* growing on birch, 03.06.2002, A. Kowalewska s.n. (UGDA-L-13312). Ibidem, on *C. ochrochlora* growing on birch, 04.06.2002, A. Kowalewska s.n. (UGDA-L-13315). Joniny forest district, forest section No. 196c, 1.5 km SE of Szludron, 54°02'00"N/17°53'45"E, on *C. macilenta* s.str. growing on birch, 31.05.2002, A. Kowalewska s.n. (UGDA-L-13311). NE of Szludron village, 54°02'00"N/17°53'45"E, on *C. ochrochlora* growing on birch, 26.10.2002, A. Kowalewska s.n. (UGDA-L-13310). [**Bc-35**] – Lubnia forest district, forest section No. 308c, 3 km NE of Lubnia village, 53°55'N/17°45'E, on *C. ochrochlora* growing on birch, 03.07.2003, A. Kowalewska s.n. (UGDA-L-13277). Forest section No. 309d, 2.5 km NE of Lubnia village, 53°55'N/17°45'E, on *C. cornuta* growing on birch, 05.07.2003, A. Kowalewska s.n. (UGDA-L-13272 & 13285). Forest section No. 334b, 3 km SE of Lubnia village, 53°55'N/17°45'E, on *C. ochrochlora* growing on birch, 16.07.2002, A. Kowalewska s.n. (UGDA-L-13262). Ibidem, on *C. cornuta* growing on birch, 15.07.2002, A. Kowalewska s.n. (UGDA-L-13263). Forest section No. 335d, 2.5 km SE of Lubnia village, 53°55'N/17°45'E, on *C. ochrochlora* growing on birch, 11.07.2003, A. Kowalewska s.n. (UGDA-L-13273). Popówka forest district, forest section No. 293g, 3 km NE of Lubnia village, 53°55'N/17°45'E, on *C. ochrochlora* growing on birch, 04.07.2003, A. Kowalewska s.n. (UGDA-L-13278). [**Bc-79**] – Czernik Świecki forest district, forest section No. 173a, 1 km E of Czernik Świecki village, 53°32'44"N/18°27'22"E, on *C. ochrochlora* growing on birch, 15.10.2001, A. Kowalewska s.n. (UGDA-L-13339). Forest section No. 206f, 3 km NE of Jeżewo village, 53°30'N/18°28'E, on *C. ochrochlora* growing on birch, 14.08.2001, A. Kowalewska s.n. (UGDA-L-13319). Kotówka forest district, forest section No. 166i, 3.5 km E of Czernik Świecki village, 53°32'N/18°27'E, on *C. ochrochlora* growing on birch, 27.10.2001, A. Kowalewska s.n. (UGDA-L-13343). Forest section No. 179b, 3 km E of Czernik Świecki village, on *C. ochrochlora* growing on birch, 23.08.2001, A. Kowalewska s.n. (UGDA-L-13324). Kwiatki forest district, forest section No. 37f, 4 km SW of Lipinki village, 53°37'N/18°28'E, on *C. cor-*

nuta growing on birch, 05.09.2001, A. Kowalewska s.n. (UGDA-L-13335). Forest section No. 39a, 4.5 km SW of Lipinki village, 53°37'N/18°28'E, on *C. macilenta* s.str. growing on birch, 31.08.2001, A. Kowalewska s.n. (UGDA-L-13330). Forest section No. 42a, 5 km SW of Lipinki village, 53°37'N/18°28'E, on *C. macilenta* s.str. growing on birch, 03.09.2001, A. Kowalewska s.n. (UGDA-L-13333). Ibidem, on *C. ochrochlora* growing on birch, 03.09.2001, A. Kowalewska s.n. (UGDA-L-13334). Forest section No. 52a, 4 km SW of Lipinki village, 53°37'N/18°28'E, on *C. cornuta* growing on birch, 23.08.2002, A. Kowalewska s.n. (UGDA-L-13346). [Be-50] – Stare Jabłonki village, 53°42'06"N/20°04'34"E, on *C. fimbriata* on soil, 20.09.1994, S. Cieśliński s.n. (KTC, specimen of *C. fimbriata*). [Bf-37] – 1 km W of Długie village, 53°53'N/22°39'E, on *C. fimbriata* on soil, 01.09.1988, S. Cieśliński s.n. (KTC, specimen of *C. fimbriata*). [Cd-30] – Imielty Ług nature reserve, 50°39'N/22°13'N, on *C. merochlorophaea* on soil, 07.09.1999, U. Bielczyk s.n. (KRAM-L-44905, specimen of *C. merochlorophaea*). [Ed-41] – Sesów village near Działoszyń town, 51°07'N/18°51'E, on *C. rei* on soil, 23.06.1964, J. Nowak s.n. (KRAM-L-11967, specimen of *C. rei*). [Gd-33] – Lysica Mt., above Rycerka Dolna village, 49°28'47"N/19°05'38"E, alt. 610 m, on *C. pyxidata* on mossy stones, 05.08.1964, J. Nowak s.n. (KRAM-L-14428, specimen of *C. pyxidata*).

Lichenosticta alcicornaria (Linds.) D.Hawksw.

Rare in Poland, only recently reported from one locality (KUKWA & CZARNOTA 2006). *Cladonia monomorpha* is a new host for this fungus.

Hosts – *Cladonia monomorpha*, *C. pyxidata* (only on squamules).

SPECIMENS EXAMINED. [Bg-53] – Jaginty village, 53°41'02"N/23°34'22"E, on *C. monomorpha* growing on soil, 25.06.1981, S. Cieśliński s.n. (KTC). [Ge-33] – Potok Biały stream valley, 49°27'N/20°26'E, alt. 670 m, on *C. pyxidata* growing on mosses, 28.06.1965, M. Olech s.n. (KRA, specimen of *C. pyxidata*). [Ge-46] – Potok Szczawnik stream valley, 49°22'46"N/20°51'47"E, alt. 560 m, on *C. pyxidata* growing on soil, 26.07.1967, M. Olech s.n. (KRA, specimen of *C. pyxidata*).

Micarea denigrata (Fr.) Hedl.

A common, mainly lignicolous, species in Poland (FAŁTYNOWICZ 2003, CZARNOTA 2005). COPPINS (1983) reported it from decaying mosses and podetia of the *Cladonia chlorophaea* group, but did not mention it growing on the latter. Therefore the record cited below may be the first report of its occurrence on a lichen.

The Polish specimen was rather small with few pycnidia and immature apothecia, but all characters match the description of the species given by COPPINS (1983). The thallus was immersed in the host, and cells clusters of a micareoid photobiont were observed among host algae.

Host – *Cladonia arbuscula* subsp. *mitis* (partly decaying podetia).

SPECIMEN EXAMINED. [Ad-51] – Helskie Wydmy nature reserve, Jastarnia forest division, forest sections Nos 252/253, 54°39'12"N/18°46'10"E, on sand in lichen vegetation, 15.10.2006, M. Kukwa 5323b (UGDA).

Phaeopyxis punctum (A.Massal.) Rambold, Triebel & Coppins

Host – *Cladonia merochlorophaea* (squamules).

SPECIMEN EXAMINED. [Ge-34] – Prehyba Mt., 49°28'05"N/20°34'15"E, alt. 900 m, on soil, 18.08.1960, J. Kiszka, J. Nowak s.n. (KRAM-L-6906, specimen of *C. merochlorophaea*).

Roselliniella cladoniae (Anzi) Matzer & Hafellner

New to Poland.

Hosts – *Cladonia arbuscula* s.l. (podetia), *C. grayi* (podetia & squamules), *C. novochlorophaea* (podetia & squamules), *C. portentosa* (podetia), *C. stygia* (podetia).

SPECIMENS EXAMINED. [Ac-63] – Łebskie Bagno projected nature reserve, near Żelazkowo village, 54°32'N/17°35'E, on *C. portentosa* growing on hummock, 18.09.2004, J. Herbich, M. Herbichowa s.n. (UGDA-L-11152). [Ad-85] – between Piaski village and Krynica Morska town, forest section No. 15, 54°24'56"N/19°33'37"E, on *C. arbuscula* s.l. growing on soil, 11.07.2001, M. Kukwa 842a (UGDA-L-12024). [Bc-25] – Węsków Bagna range, 54°02'N/17°52'E, on *C. novochlorophaea* growing on soil, 12.09.2002, A. Kowalewska s.n. (UGDA-L-7744). [Cg-55]

– Białowieża National Park, forest section No. 373, 52°43'41"N/23°52'49"E, on *C. grayi* growing on soil, 1982, S. Cieśliński s.n. (KTC, specimen of *C. grayi*). [**Ee–87**] – Świętokrzyskie Mts, vicinity of Łagów village, Łukawa forest district, 50°47'N/21°04'E, on *C. stygia* growing on soil, 23.09.2002, S. Cieśliński s.n. (KTC, specimen of *C. stygia*).

Syzygospora bachmannii Diederich & M.S.Christ.

Only the second locality in Poland (CZYŻEWSKA et al. 2001). *Cladonia monomorpha* is a new host for the fungus.

Host – *Cladonia monomorpha*.

SPECIMEN EXAMINED [**Ge–60**] – Tatrzy Mts, Skoruśniak Mt, 49°12'N/20°03'E, on soil, 14.07.1922, s.coll. (KRAM-L–476, specimen of *C. monomorpha*).

Taeniolella beschiana Diederich

This appears to be the commonest lichenicolous fungus on *Cladonia* in Poland, but previously overlooked due to its minute size.

Hosts – *Cladonia cenotea* (squamules), *C. chlorophaea* s.str. (squamules), *C. coccifera* (podetia & squamules), *C. cryptochlorophaea* (squamules), *C. grayi* (podetia & squamules), *C. merochlorophaea* (podetia & squamules), *C. novochlorophaea* (squamules), *C. ochrochlora* (squamules), *C. rei* (squamules), *C. subulata* (squamules) *C. uncialis* (podetia), *C. sp.* (squamules),

SPECIMENS EXAMINED. [**Ac–38**] – NW part of 'Bielawa' nature reserve, 54°48'42"N/18°13'51"E, on *C. novochlorophaea* growing on birch, 17.06.2006, M. Kukwa 5232 (UGDA-L–13026). [**Ad–51**] – E of Hel town, 54°36'18"N/18°48'57"E & 54°36'26"N/18°49'32"E, on *C. sp.* growing on pine and wood, 12.02.2005, M. Kukwa 3755 & 3783 (UGDA-L–12095 & 11399). Helskie Wydmy nature reserve, 54°39'12"N/18°46'10"E, on *C. coccifera* growing on sand, 15.10.2006, M. Kukwa 5322 (UGDA, specimen of *C. coccifera*). Ibidem, 54°39'30"N/18°46'01"E, on *C. uncialis* growing on soil, 15.10.2006, M. Kukwa 5379 (UGDA, specimen of *C. uncialis*). Ibidem, 54°39'708"N/18°45'553"E, on *C. cf. merochlorophaea* growing on sand, 15.10.2006, R. Afranowicz, M. Kukwa s.n. (UGDA). [**Bc–25**] – 0.5 km S of Schodno village, 54°03'N/17°51'E, on *C. ochrochlora* and *C. chlorophaea* s.str. growing on birch, 17.06.2002, A. Kowalewska s.n. (UGDA-L–13291 & 13292). 1 km S of Schodno village, 54°03'N/17°51'E, on *C. merochlorophaea* growing on birch, A. Kowalewska s.n. (UGDA-L–13307). 0.5 km SW of Szludron village, 54°02'00"N/17°53'45"E, on *C. merochlorophaea* growing on birch, 23.05.2003, 18.06.2002 & 14.09.2002, A. Kowalewska s.n. (UGDA-L–13294, 13299 & 13300). 1.5 km S of Szludron village, on *C. cryptochlorophaea* growing on birch, 14.09.2002, A. Kowalewska s.n. (UGDA-L–13301). Forest section Nos 197b & 197c, 1 km S of Szludron village, on *C. merochlorophaea* growing on birch, 24.05.2003 & 20.09.2002, A. Kowalewska s.n. (UGDA-L–13293 & 13297). Forest section No. 194a, 1 km SW of Szludron village, on *C. merochlorophaea* growing on birch, 24.05.2003 & 18.09.2002, A. Kowalewska s.n. (UGDA-L–13296 & 13298). Forest section No. 199b, 1.5 km S of Szludron village, on *C. merochlorophaea* growing on birch, 13.09.2002, A. Kowalewska s.n. (UGDA-L–13302). Forest section No. 198a & 198h, 1.5 km S of Szludron village, on *C. merochlorophaea* growing on birch, 14-17.09.2002, A. Kowalewska s.n. (UGDA-L–13303 & 13308). W of Loryniec village, 54°03'N/17°54'E, on *C. merochlorophaea* growing on birch, 16.07.2003, A. Kowalewska s.n. (UGDA-L–13279). Węsków Bagna range, 54°02'N/17°52'E, on *C. merochlorophaea* growing on birch, 12.09.2002, A. Kowalewska s.n. (UGDA-L–7751). [**Bc–35**] – Lubnia forest district, forest section No. 308a, 3 km NE of Lubnia village, 53°55'N/17°45'E, on *C. merochlorophaea* growing on birch, 05.07.2002, A. Kowalewska s.n. (UGDA-L–13258 & 13260). Forest section No. 308c, 3 km NE of Lubnia village, 53°55'N/17°45'E, on *C. merochlorophaea* and *C. ochrochlora* growing on birch, 04.07.2003, A. Kowalewska s.n. (UGDA-L–13280 & 13283). Forest section No. 335d, 2.5 km SE of Lubnia village, 53°55'N/17°45'E, on *C. novochlorophaea* growing on birch, 13.07.2002, A. Kowalewska s.n. (UGDA-L–13259). Forest section No. 330c, 2.5 km SE of Lubnia village, 53°55'N/17°45'E, on *C. arbuscula* subsp. *mitis*, *C. merochlorophaea* and *C. ochrochlora* growing on birch, 16.07.2002, A. Kowalewska s.n. (UGDA-L–13264, 13265 & 13267). Forest section No. 334b, 3 km SE of Lubnia village, 53°55'N/17°45'E, on *C. grayi* and *C. merochlorophaea* growing on birch, 12-15.07.2002, A. Kowalewska s.n. (UGDA-L–13266, 13269 & 13270). Forest section No. 338f, 3 km SE of Lubnia village, 53°55'N/17°45'E, on *C. cryptochlorophaea* growing on birch, 13.07.2002, A. Kowalewska s.n. (UGDA-L–13268). Forest section No. 316a, 3 km E of Lubnia village, 53°55'N/17°45'E, on *C. merochlorophaea* growing on birch, 06.07.2002, A. Kowalewska s.n. (UGDA-L–13271). Popówka forest district, forest section No. 301c, 2.5 km NE of Lubnia village, 53°55'N/17°45'E, on *C. merochlorophaea* and *C. grayi* growing on birch, 08.07.2003, A. Kowalewska s.n. (UGDA-L–1328613287). Forest section No. 293g, 3 km NE of Lubnia village,

53°55'N/17°45'E, on *C. cenotea* growing on birch, 04.07.2003, A. Kowalewska s.n. (UGDA-L-13290). [Bc-58] – C. 0.75 km SW of Luby village, 53°42'N/18°22'E, *C. sp.* on birch, 11.07.2003, M. Kukwa 1961 (UGDA). [Bc-64] – Mrowiniec village, 53°38'N/17°43'E, on *C. subulata* growing on soil, 23.07.1973, K. Czyżewska s.n. (LOD-L-7054, specimen of *C. subulata*). [Bc-79] – Czernik Świecki forest district, forest section No. 184d, 1 km SE of Czernik Świecki village, 53°32'44"N/18°27'22"E, on *C. grayi* growing on birch, 13.08.2001, A. Kowalewska s.n. (UGDA-L-13318). Forest section No. 173d, 1 km E of Czernik Świecki village, on *C. merochlorophaea* growing on birch, 16.10.2001, A. Kowalewska s.n. (UGDA-L-13340). Forest section No. 172a, 1 km E of Czernik Świecki village, on *C. grayi* (squamules) growing on birch, 17.10.2001, A. Kowalewska s.n. (UGDA-L-13341). Kotówka forest district, forest section No. 179b, 3 km E of Czernik Świecki village, 53°32'44"N/18°27'22"E, on *C. merochlorophaea* and *C. grayi* growing on birch, 23.08.2001, A. Kowalewska s.n. (UGDA-L-13325, 13327 & 13326). Forest section No. 137c, 4.5 km NE of Czernik Świecki village, on *C. grayi* growing on birch, 27.08.2001, A. Kowalewska s.n. (UGDA-L-13328). Kotówka forest district, forest section No. 95c, 4.5 km S of Lipinki village, 53°37'N/18°28'E, on *C. merochlorophaea* growing on birch, 28.08.2002, A. Kowalewska s.n. (UGDA-L-13348). Forest section No. 95c, 4.5 km S of Lipinki village, 53°37'N/18°28'E, on *C. merochlorophaea* growing on birch, 29.08.2002, A. Kowalewska s.n. (UGDA-L-13349). Forest section No. 111d, 4 km NE of Czernik Świecki village, on *C. merochlorophaea* growing on birch, 29.08.2002, A. Kowalewska s.n. (UGDA-L-13350). Kwiatki forest district, forest section No. 27g, 5 km SW of Lipinki village, 53°37'N/18°28'E, on *C. merochlorophaea* growing on birch, 30.08.2001, A. Kowalewska s.n. (UGDA-L-13329). Forest section No. 41b, 5 km SW of Lipinki village, on *C. merochlorophaea* growing on birch, 03.09.2001, A. Kowalewska s.n. (UGDA-L-13332). Forest section No. 37f, 4 km SW of Lipinki village, on *C. merochlorophaea* growing on birch, 19.10.2001, A. Kowalewska s.n. (UGDA-L-13342). Forest section No. 52a, 4 km SW of Lipinki village, on *C. merochlorophaea* growing on birch, 22.08.2002, A. Kowalewska s.n. (UGDA-L-13345). Forest section No. 54f, 5 km SW of Lipinki village, 53°37'N/18°28'E, on *C. merochlorophaea* growing on birch, 27.08.2002, A. Kowalewska s.n. (UGDA-L-13347). Dąbrowa forest district, forest section No. 206c, 3 km NE of Jezewo village, 53°30'N/18°28'E, on *C. merochlorophaea* growing on birch, 11.08.2001, A. Kowalewska s.n. (UGDA-L-13317). Forest section No. 208b, 3 km NE of Jezewo village, 53°30'N/18°28'E, on *C. merochlorophaea* growing on birch, 17.08.2001, A. Kowalewska s.n. (UGDA-L-13320). Forest section No. 299a, 4 km NE of Jezewo village, 53°30'N/18°28'E, on *C. merochlorophaea* growing on birch, 19.08.2001, A. Kowalewska s.n. (UGDA-L-13322). [Bd-70] – Rulowo forest district, forest section No. 297s, 1 km SE of Buśnia village, 53°31'50"N/18°36'00"E, on *C. merochlorophaea* growing on birch, 20.08.2001, A. Kowalewska s.n. (UGDA-L-13323). [Be-39] – Notyst Wielki village, 53°54'50"N/21°28'34"E, on *C. subulata* on soil, 02.05.1989, S. Cieśliński s.n. (KTC, specimen of *C. subulata*). [Bf-67] – Grzędy nature reserve, 53°36'10"N/22°51'43"E, on *C. subulata* on soil, 20.06.1984, K. Czyżewska s.n. (LOD-L-7217, specimen of *C. subulata*). [Cf-01] – Dobrylas, 53°16'51"N/21°51'03"E, on *C. subulata* growing on soil, 14.05.1985, K. Czyżewska s.n. (LOD-L-8724, specimen of *C. subulata*). [Cg-11] – Bagnówka village, 53°08'43"N/23°12'49"E, on *C. subulata* growing on soil, 16.08.1983, K. Czyżewska s.n. (LOD-L-8203, specimen of *C. subulata*). [Cg-32] – S of Olszanka village, 52°58'46"N/23°23'35"E, on *C. cryptochlorophaea* growing on soil, 17.08.1995, S. Cieśliński s.n. (KTC, specimen of *C. cryptochlorophaea*). [Cg-55] – Białowieża National Park, forest section No. 373, 52°43'41"N/23°52'49"E, on *C. grayi* growing on soil, 1982, S. Cieśliński s.n. (KTC, specimen of *C. grayi*). [Cg-72] – Kleszczele-Piaski village, 52°34'45"N/23°19'05"E, on *C. rei* growing on soil, 26.06.1987, K. Czyżewska s.n. (LOD-L-9003, specimen of *C. rei*). [Ec-97] – Between Muraw and Mańczok villages, 50°40'N/18°14'E, on *C. subulata* growing on soil, 27.07.1984, K. Czyżewska s.n. (LOD-L-7518 & 7501, specimens of *C. subulata*). [Ed-77] – Łabędź village, 50°50'00"N/19°39'15"E, on *C. subulata* on soil, 20.06.1969, K. Czyżewska s.n. (LOD-L-5985). [Ge-22] – Gorce Mts, S slope of Twarogi Mt., 49°31'N/20°22'E, alt. 530 m, on *C. subulata* growing over mosses, 05.11.1999, P. Czarnota s.n. (GPN 2189, specimen of *C. subulata*). [Ge-33] – Bryjarka Mt., 49°27'N/20°26'E, alt. 650 m, on *C. subulata* on rocks, 06.06.1991, L. Śliwa s.n. (KRA, specimen of *C. subulata*).

Tremella cladoniae Diederich & M.S.Christ.

Appears to be a hygrophilous species, preferring a forest ecosystem, especially those in valleys or close to lakes.

Host – *Cladonia chlorophaea* (squamules), *C. cf. fimbriata* (squamules), *C. grayi* (squamules & podetia), *C. ochrochlora* (squamules).

SPECIMENS EXAMINED. [Ac-43] – Wielkie Bagno peatbog, near Leba town, 54°41'N/17°29'E, on *C. grayi* on soil, 08.1950, Z. Tobolewski s.n. (POZ, specimen of *C. grayi*). [Be-11] – 3 km SW of Migajny village, 54°05'N/20°18'E, on *C. chlorophaea* on willow, 10.05.1989, S. Cieśliński s.n. (KTC, specimen of *C. chlorophaea*). [Eg-91] – S of Zwierzyniec village, Bukowa Góra nature reserve, 50°35'47"N/22°57'48"E, on *C. ochrochlora* growing on wood, 30.04.2006, M. Kukwa 5036 (UGDA). [Ff-99] – Przemyśl town, 49°47'11"N/22°46'50"E, on *C. chlorophaea* growing on soil, 19th century, s.coll. (KRAM-L-11529, specimen of *C. chlorophaea*). [Ge-35] – Czerce stream valley, 49°27'N/20°42'E, alt. 500 m, on *C. cf. fimbriata* on wood, 14.09.1965, M. Olech s.n. (KRA, specimen of *C. cf. fimbriata*).

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