

New or interesting records of lichenicolous fungi from Poland VII. Species mainly from Tatra Mountains

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Abstract: KUKWA, M. & FLAKUS, A. 2009. New or interesting records of lichenicolous fungi from Poland VII. Species mainly from Tatra Mountains. – *Herzogia* 22: 191–211.

Records of 98 species of lichenicolous fungi and lichens are presented, mainly from Tatra Mts. Six species, *Cercidospora lecidomae*, *Everniicola flexispora*, *Rhagadostoma boleaе*, *R. rugosum*, *Stigmidium cladoniicola* and *S. leprariae*, are new to Central Europe. Thirty four species are reported as new to Poland: *Acremonium antarcticum*, *Arthonia almquistii*, *Cercidospora punctillata*, *C. stereocaulorum*, *C. trypteliza*, *Cornutispora* aff. *ciliata*, *Dactylospora australis*, *D. deminuta*, *Endococcus brachysporus*, *E. fusiger*, *E. macrosporus*, *E. perpusillus* s.str., *Epibryon conductrix*, *E. solorinae*, *Epigloea urosperma*, *Minutoexcipula tuerkii*, *Miriquidica intrudens*, *Niesslia peltigericola*, *Opegrapha geographicola*, *O. glaucomaria*, *Phaeosporobolus alpinus*, *Phoma denigricans*, *Polycoccum bryonothae*, *P. sporastatae*, *Sagediopsis fissurisedens*, *Sphaerellothecium atryneae*, *S. cladoniae*, *S. contextum*, *Spirographa fusisporella*, *Stigmidium frigidum*, *S. gyrophorum*, *Taeniolella atricerebrina*, *Thamnogalla crombiei*, *Zwackhiomyces berengerianus* and *Z. diederichii*. New hosts are reported for *Cercidospora lecidomae* (*Thamnolia vermicularis*), *Endococcus* aff. *propinquus* (*Bellemeria* cf. *alpina*), *Everniicola flexispora* (*Catolechia wahlenbergii*), *Lichenoconium lecanorae* (*Alectoria ochroleuca*, *Allantoparmelia alpicola* and *Catolechia wahlenbergii*), *Monodictys epilepraria* (*Lepraria vouauxii*), *Niesslia peltigericola* (*Lichenomphalia* cf. *umbellifera*) and *Sphaerellothecium atryneae* (*Lecanora rupicola* s.lat. and *L. swartzii* subsp. *nylanderii*). Material temporarily referred to as *Llimoniella* aff. *adnata* is also reported and commented.

Zusammenfassung: KUKWA, M. & FLAKUS, A. 2009. Neue oder interessante Funde lichenicoler Pilze aus Polen VII. Arten überwiegend aus dem Tatra Gebirge. – *Herzogia* 22: 191–211.

Nachweise von 98 Arten von lichenicolen Pilzen und Flechten werden gemeldet, hauptsächlich aus dem Tatra-Gebirge. Sechs Arten, *Cercidospora lecidomae*, *Everniicola flexispora*, *Rhagadostoma boleaе*, *R. rugosum*, *Stigmidium cladoniicola* und *S. leprariae*, sind neu für Mittel-Europa. 34 Arten werden zum ersten Mal aus Polen angegeben: *Acremonium antarcticum*, *Arthonia almquistii*, *Cercidospora punctillata*, *C. stereocaulorum*, *C. trypteliza*, *Cornutispora* aff. *ciliata*, *Dactylospora australis*, *D. deminuta*, *Endococcus brachysporus*, *E. fusiger*, *E. macrosporus*, *E. perpusillus* s.str., *Epibryon conductrix*, *E. solorinae*, *Epigloea urosperma*, *Minutoexcipula tuerkii*, *Miriquidica intrudens*, *Niesslia peltigericola*, *Opegrapha geographicola*, *O. glaucomaria*, *Phaeosporobolus alpinus*, *Phoma denigricans*, *Polycoccum bryonothae*, *P. sporastatae*, *Sagediopsis fissurisedens*, *Sphaerellothecium atryneae*, *S. cladoniae*, *S. contextum*, *Spirographa fusisporella*, *Stigmidium frigidum*, *S. gyrophorum*, *Taeniolella atricerebrina*, *Thamnogalla crombiei*, *Zwackhiomyces berengerianus* und *Z. diederichii*. Neue Wirtsflechten werden gemeldet für *Cercidospora lecidomae* (*Thamnolia vermicularis*), *Endococcus* aff. *propinquus* (*Bellemeria* cf. *alpina*), *Everniicola flexispora* (*Catolechia wahlenbergii*), *Lichenoconium lecanorae* (*Alectoria ochroleuca*, *Allantoparmelia alpicola* und *Catolechia wahlenbergii*), *Monodictys epilepraria* (*Lepraria vouauxii*), *Niesslia peltigericola* (*Lichenomphalia* cf. *umbellifera*) und *Sphaerellothecium atryneae* (*Lecanora rupicola* s.lat. und *L. swartzii* subsp. *nylanderii*). Material von *Llimoniella* aff. *adnata* wird gemeldet und diskutiert.

Key words: Ascomycota, Basidiomycota, mitosporic fungi, Myxomycota, biodiversity.

Introduction

So far six parts of the series presenting distributional data on lichenicolous fungi in Poland were published (see KUKWA et al. 2002, KUKWA 2004, 2005, KUKWA & CZARNOTA 2006, KUKWA & KOWALEWSKA 2007, KUKWA & JABŁOŃSKA 2008). In this part, records of 98 taxa are presented, 6 of which are new to Central Europe and 34 are new to Poland.

In this paper we accept several species in the genus *Endococcus* Nyl. following the narrow species concept proposed by SÉRUSIAUX et al. (1999). Most of these were not accepted by IHLEN & WEDIN (2008) as they found no characters to separate species in *E. perpusillus* s.lat. and pointed out that the differences between *E. brachysporus* (Zopf) M.Brand & Diederich and *E. propinquus* (Körb.) D.Hawksw. are not convincing. However, during our studies we have been able to find at least subtle differences related to the host specificity. In our opinion even more taxa are involved in the group of species referred to as *E. perpusillus* (Körb.) D.Hawksw., *E. propinquus* and *E. rugulosus* Nyl. At present they are placed under those widely used names, as so far we could not connect them to any existing name (see comments under the species). As pointed out by IHLEN & WEDIN (2008), the genus *Endococcus* is in need of urgent revision.

Material and methods

Specimens were identified by the authors with the aid of the following literature: ALSTRUP & HAWKSWORTH (1990), ALSTRUP & OLECH (1996), CLAUZADE et al. (1989), COLE & HAWKSWORTH (2004), DIEDERICH (1990, 1996, 2003), DIEDERICH & ETAYO (2000), DIEDERICH & LAWREY (2007), DIEDERICH et al. (2003), ETAYO & DIEDERICH (1996), ETAYO & SANCHO (2008), GRUBE & HAFELLNER (1990), HAFELLNER (1994), HAFELLNER & NAVARRO-ROSINÉS (1993), HALICI & HAWKSWORTH (2007), HAWKSWORTH (1979, 1981, 1983), HAWKSWORTH & COLE (2002, 2004), HAWKSWORTH & HAFELLNER (1986), HAWKSWORTH & ITURRIAGA (2006), HAWKSWORTH & MIADLIKOWSKA (1997), HAWKSWORTH & SANTESSON (1990), HOFFMANN & HAFELLNER (2000), IHLEN (1995), IHLEN & WEDIN (2007, 2008), KEISSLER (1930), KOCOURKOVÁ (2000), KUKWA & DIEDERICH (2005), LOWEN (1995), PUNITHALINGAM (2004), ROUX & TRIEBEL (1994), SANTESSON (1960), SÉRUSIAUX et al. (1999), TRIEBEL (1989, 1993), TRIEBEL & CÁCERES (2004), TRIEBEL et al. (1997), WEDIN & HAFELLNER (1998), ZHURBENKO (2007), ZHURBENKO & ALSTRUP (2004), ZHURBENKO & DIEDERICH (2008) and ZHURBENKO & TRIEBEL (2003). Representative material has been deposited in the lichen herbaria KRAM, LBL, POZ, UGDA, ZAMU and herb. Flakus.

All examined 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). Specimens of A. Flakus were collected mostly in the subnival belt of High Tatra Mts. All localities from the Tatra Mts are in the territory of the Tatra National Park. The following abbreviations are used: fs – forest section(s); NP – National Park; NR – nature reserve.

The species

Acremonium antarcticum (Speg.) D.Hawksw.

New to Poland.

Host – *Hypogymnia physodes* (thallus).

SPECIMEN EXAMINED. [Ac–42] – Słowiński National Park, 54°45'N/17°27'E, on birch, 23.10.1999, M. Kukwa s.n. (UGDA-L-14826).

Abrothallus bertianus De Not.

Rare species in Poland, previously known from four records (see KOERBER 1855, STEIN 1879, ALSTRUP & OLECH 1996, KUKWA & KOWALEWSKA 2007).

Host – *Melanelixia fuliginosa* (thallus).

SPECIMEN EXAMINED. [Gd-59] – Western Tatra Mts, S slope of Lysanki Mt., 49°16'20"N/19°54'40"E, on deciduous tree, 06.06.1967, J. Motyka s.n. (LBL, specimen of *Ochrolechia szatalaensis*).

Abrothallus caeruleus Kotte

Uncommon in Poland, but perhaps only overlooked. It is the third locality in northern Poland (see KUKWA & JABŁOŃSKA 2008 and literature cited therein).

Host – *Xanthoparmelia conspersa* (thallus).

SPECIMEN EXAMINED. [Ac-97] – Brodnica Dolna village, 54°15'40"N/18°06'10"E, on stone, 31.10.1995, W. Fałtynowicz s.n. (UGDA-L-14726).

Arthonia almquistii Vain.

New to Poland. The species seems to occur on a wide range of lecideoid lichens (e.g. KOCOURKOVÁ 2000, IHLEN & WEDIN 2008).

Host – *Bilimbia* cf. *sabuletorum* (thallus).

SPECIMEN EXAMINED. [Ge-60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2105 m, on soil, 24.08.2004, A. Flakus 3436/2 (KRAM).

Arthonia peltigerina (Almq.) H.Olivier

So far reported in Poland only from one locality in the Tatra Mts (FAŁTYNOWICZ 2003 and literature cited therein).

An additional specimen of *Arthonia* growing on the thallus and the apothecia of *Solorina bispora* was also found (Flakus 864/1, KRAM), but that material does not belong to *A. peltigerina*. It is characterised by an orange-brown hypothecium, a brown-grey hymenium, a grey-brown to brown epithecium with paraphyses embedded in gelatine matrix and 1-septate colourless ascospores, $13 \times 4.5\text{--}5\ \mu\text{m}$. The hymenium reacts I+ and K/I + red. That material requires further studies.

Host – *Solorina crocea* (thallus).

SPECIMENS EXAMINED. [Ge-60] – High Tatra Mts, Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2115 m, on soil, 16.08.2003, A. Flakus 1762/1 (KRAM); ibidem, 49°11'19"N/20°03'06"E, 2135 m, on soil, 16.08.2003, A. Flakus 1864/1 (KRAM, herb. Flakus); Mięguszwiecki Szczyt Mt., 49°11'20"N/20°03'34"E, 2100 m, on soil, 22.07.2004, A. Flakus 2744/2 (KRAM, UGDA).

Arthrorhaphis grisea Th.Fr.

Probably quite common in southern Poland (see KUKWA & CZARNOTA 2006 and literature cited therein, FLAKUS & BIELCZYK 2006).

Host – *Baeomyces* sp. (thallus).

SPECIMEN EXAMINED. [Ge-60] – High Tatra Mts, Wyznia Białczańska Przełęcz pass, 49°11'20"N/20°05'13"E, 2085 m, on soil, 20.08.2005, A. Flakus 5449 (KRAM).

Athelia arachnoidea (Berk.) Jül.

Common species with wide host amplitude.

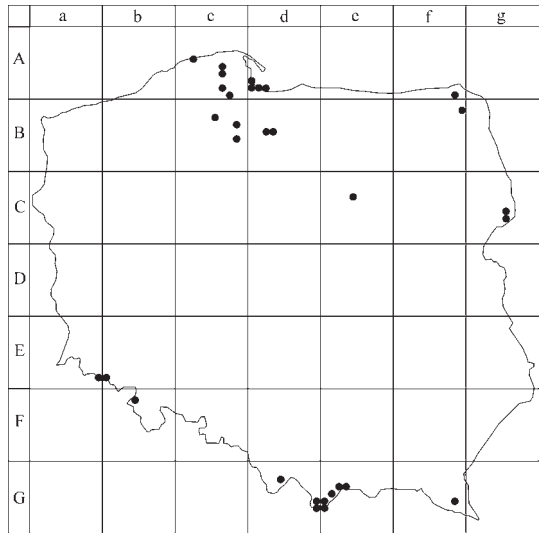


Fig. 1: Localities of the species in Poland given in ATPOL grid square system.

Hosts – *Lecanora* cf. *expallens*, *Phaeophyscia orbicularis*, *Parmeliopsis ambigua*, *Xanthoria* sp., *X. candelaria* s.lat. (in all cases on thallus), *X. parietina* (on apothecia and thallus).

SPECIMENS EXAMINED. [Ac–56] – Świetlino village, 54°35'N/17°56'E, on *X. candelaria* s.lat. growing on maple, 07.04.2001, M. Kukwa 605 (UGDA); [Ad–82] – N of Mikoszewo village, Mewia Łacha NR, 54°21'00"N/18°57'50"E, on *X. parietina* growing on willow, 25.09.1999, K. Jando, M. Kukwa s.n. (UGDA-L-14723); [Bc–38] – Wirty village, 53°54'N/18°23'E, on *Lecanora* cf. *expallens* growing on oak, 11.06.2004, M. Kukwa 3280 (UGDA, specimen of *Monodictys epilepraria*); [Cg–65] – Białowieża village, 52°42'N/23°52'E, on *Phaeophyscia orbicularis* growing on lime tree, 26.03.2001, M. Kukwa 138a (UGDA); [Ea–89] – Karkonosze Mts, Dolina Łomniczki valley, 50°45'N/15°45'E, on *Parmeliopsis ambigua* growing on willow, 07.09.2001, M. Kukwa 1160 (UGDA, specimen of *Lichenocodium erodens*).

Carbonea aggregantula (Müll.Arg.) Diederich & Triebel

So far reported in Poland only by ALSTRUP & OLECH (1996) and KOSSOWSKA (2008).

Host – *Lecanora polytropa* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'03"E, subnival belt, 2409 m, on rock, 11.08.2003, A. Flakus 1607/1 (KRAM).

Cecidonia umbonella (Nyl.) Triebel & Rambold

In Poland the species was reported from one locality in the Tatra Mts (FLAKUS 2007) and one in the Karkonosze Mts (KOSSOWSKA 2008).

Host – *Lecidea lapicida* var. *pantherina* (thallus), *L. swartzioidea* (thallus).

SPECIMENS EXAMINED (all in the subnival belt and host species on rocks). [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on *L. swartzioidea*, 17.07.2003, A. Flakus 562/1 (herb. Flakus); Szpiglasowy Wierch Mt., 49°11'51"N/20°02'23"E, 2170 m, on *L. swartzioidea*, 20.07.2003, A. Flakus 664/1 (UGDA); Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, 11.08.2003, on *L. lapicida* var. *pantherina* and *L. swartzioidea*, A. Flakus 1568/2, 1598/2 (KRAM).

Cercidospora epipolytropa (Mudd) Arnold

Uncommon in Poland (see FLAKUS 2007, KUKWA & KOWALEWSKA 2007, KOSSOWSKA 2008 and literature cited therein, KUKWA & JABŁOŃSKA 2008), but perhaps quite common in the Tatra Mts.

Host – *Lecanora polytropa* (apothecia).

SPECIMENS EXAMINED (all in the subnival belt and host species on rocks). [Ge–60] – High Tatra Mts, Cubryna Mt., E ridge, 49°11'16"N/20°03'15"E, 2370 m, 01.08.2003, A. Flakus 1068 (KRAM); Mięguszwiecka Przełęcz pod Chłopkiem pass, 49°11'01"N/20°03'56"E, 2307 m, 22.08.2005, A. Flakus 5496/1 (herb. Flakus); Pośredni Mięguszwiecki Szczyt Mt., 49°11'05"N/20°03'43"E, 2392 m, 12.08.2003, A. Flakus 1653 (KRAM); Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, 24.08.2004, A. Flakus 3517/2 (KRAM).

Cercidospora lecidomae Zhurb. & Triebel

New to Poland and Central Europe. The Polish material was found on *Thamnomia vermicularis*, but the specimen is identical with the description of *C. lecidomae*, reported from *Lecidoma demissum* so far (ZHURBENKO & TRIEBEL 2003). Therefore, we report the species here with a small hesitation; however, the host amplitude of the fungus may be much larger than previously expected. Nevertheless it needs more studies.

Cercidospora thamnoliicola Ihlen is also known from *Thamnomia vermicularis*, but it clearly differs in the brown, not aeruginose wall of the perithecia (IHLEN 1995, ZHURBENKO & TRIEBEL 2003).

Host – *Thamnomia vermicularis* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Mięguszwiecki Szczyt Mt., 49°11'13"N/20°03'34"E, subnival belt, 2438 m, on soil, 17.08.2003, A. Flakus 1926 (KRAM).

Cercidospora punctillata (Nyl.) R.Sant.

New to Poland.

Host – *Solorina crocea* (thallus).

SPECIMEN EXAMINED. [Ge–60] – The High Tatra Mts, Miedziane Mt., 49°12'05"N/20°02'56"E, 2233 m, on soil, 17.07.2003, A. Flakus 634/1 (herb. Flakus).

Cercidospora stereocaulorum (Arnold) Hafellner

New to Poland.

Host – *Stereocaulon* sp. (phyllocladia).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Mięguszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on soil, 16.07.2004, A. Flakus 2551/1 (KRAM).

Cercidospora trypetheliza (Nyl.) Hafellner & Obermayer

New to Poland.

Host – *Arthrorhaphis alpina* (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on soil, 27.07.2003, A. Flakus 987/1 (herb. Flakus); Mięguszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on soil, 16.07.2004, A. Flakus 2533 (KRAM).

Clypeococcum hypocenomycis D.Hawksw.

Common lichenicolous fungus, mostly found on the host growing on acidic bark of coniferous trees and birch.

Host – *Hypocenomyce scalaris* (thallus).

SPECIMEN EXAMINED. [Ac–56] – C. 0.5 km SE of Świetlino village, 54°36'N/17°54'E, on birch, 07.04.2001, M. Kukwa 603 (UGDA).

Cornutispora* aff. *ciliata Kalb

New to Poland. The material is characterized by conidial arms that are wider (2.5–4 µm) than in the original description (2–2.5 µm) (GIERL & KALB 1993, see also PUNITHALINGAM 2004).

Host – *Rhizocarpon geographicum* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Czarny Mięguszowiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on rock, 21.07.2003, A. Flakus 791/1 (KRAM).

Cornutispora lichenicola D. Hawksw. & B. Sutton

A quite rare fungus in Poland, reported from 6 localities (see KUKWA & KOWALEWSKA 2007, and literature cited therein). Perhaps only overlooked due to pale pycnidia immersed in the host thallus.

Host – *Parmelia sulcata* (thallus).

SPECIMEN EXAMINED. [Be–43] – NE of Olsztyn city, by Wadąg lake, on oak, 09.08.2003, T. Szostko, O. Piotrowski s.n. (UGDA-L–9024).

Corticifraga fuckelii (Rehm) D.Hawksw. & R.Sant.

Host – *Peltigera didactyla* (thallus).

SPECIMENS EXAMINED. [Ac–56] – Świetlino village, 54°36'N/17°54'E, on soil, 07.04.2001, M. Kukwa 602 (UGDA); [Ac–66] – Pradolina Łeby i Redy, c. 0.25–0.5 km W of Chmieleniec village, on soil, 07.04.2001, M. Kukwa 551 (UGDA).

Dactylospora australis Triebel & Hertel

New to Poland.

Host – *Porpidia zeoroides* (thallus), *Porpidia* sp. (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on *P. zeoroides* growing on rock, 24.08.2004, A. Flakus 3519/1 (KRAM); Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on *Porpidia* sp. growing on rock, 24.08.2004, A. Flakus 3492 (KRAM).

Dactylospora deminuta (Th.Fr.) Triebel

New to Poland.

Host – *Biatora* sp. (apothecia), *Lecanora epibryon* (thallus), *Schadonia fecunda* (thallus), sterile lichen (thallus).

SPECIMENS EXAMINED (hosts on terricolous bryophytes or soil). [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on *Lecanora epibryon*, 15.07.2004, A. Flakus 2466/1 (KRAM); ibi-

dem, 49°11'53"N/20°02'34"E, 2105 m, on *Biatora* sp., 24.08.2004, A. Flakus 3425/2 (KRAM); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2105 m, on sterile lichen, 24.07.2004, A. Flakus 2933 (KRAM); ibidem, 2115 m, on *Schadonia fecunda*, 07.08.2004, A. Flakus 3026/1 (KRAM).

***Endococcus brachysporus* (Zopf) M.Brand & Diederich**

New to Poland. The species differs from *E. propinquus* and *E. aff. propinquus* (see below) by small [7–10 × (4.5–)5–6(–6.5)µm], medium to dark brown ascospores with smooth and thin (0.5–0.8µm wide) ascospore wall, and thick (1–1.7µm wide) septum with dark medium lamella. The perithecia are half-immersed to superficial and 100–270µm wide (see also SÉRUSIAUX et al. 1999).

Host – *Porpidia tuberculosa* (thallus).

SPECIMEN EXAMINED. [Gd–24] – Beskid Żywiecki Mts, Romanka Mt., 49°33'12"N/19°13'32"E, 1260 m, on rock, 20.09.1964, J. Nowak s.n. (KRAM-L–16480, specimen of *P. tuberculosa*).

***Endococcus fusiger* Th.Fr. & Almq.**

New to Poland. Among the species found on the species of *Rhizocarpon*, *E. fusiger* is distinguished by superficial and 130–230µm wide perithecia and rather long and wide ascospores (12.5–16 × 6–7µm) (see SÉRUSIAUX et al. 1999). According to KOCOURKOVÁ (2000) the ascospores can also be longer (19–20µm). Ascospore size in Polish material was mostly similar to that reported by SÉRUSIAUX et al. (1999), but in one specimen (A. Flakus 2722/1) the ascospores were 16–20 × 6µm, and in another (A. Flakus 2740/2) 15–18 × 5–7µm. Also several narrower ascospores (less than 6µm in width), and thus similar to *E. exerrans* Nyl., were found, but the perithecia were always superficial and larger (c. 150–200µm) than in *E. exerrans*. Perhaps *E. fusiger* is a heterogeneous species.

Host – *Rhizocarpon badioatrum* (thallus), *R. lavatum* (thallus), *R. polycarpum* (thallus).

SPECIMENS EXAMINED (all in the subnival belt, all host growing on rocks). [Ge–60] – High Tatra Mts, Mieguszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on *R. cf. lavatum*, 16.07.2004, A. Flakus 2593 (herb. Flakus); Rysy Mt., 49°10'53"N/20°05'03"E, 2160 m, on *R. badioatrum*, 20.07.2004, A. Flakus 2722/1 & 2740/2 (KRAM); ibidem, on *R. badioatrum*, A. Flakus s.n. (KRAM-L–52677, specimen of *R. badioatrum*); Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on *R. lavatum*, 17.07.2003, A. Flakus s.n. (KRAM-L–52749, specimen of *R. lavatum*); below Kazalnica massif, 49°11'08"N/20°04'06"E, 2100 m, on *R. lavatum*, 12.08.2003, A. Flakus s.n. (KRAM-L–52751, specimen of *R. lavatum*); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2115 m, on *R. polycarpum*, 07.08.2004, A. Flakus s.n. (KRAM-L–52769); Wyznia Białczańska Przełęcz pass, 49°11'20"/20°05'13"E, 2085 m, on *R. lavatum*, 20.08.2005, A. Flakus s.n. (KRAM-L–52760, specimen of *R. lavatum*).

***Endococcus macrosporus* (Arnold) Nyl.**

New to Poland. The ascospores of the species are the largest in all so far known *Endococcus* species inhabiting *Rhizocarpon* and measure 16–20(–22) × 5.5–7(–8)µm (see SÉRUSIAUX et al. 1999, KOCOURKOVÁ 2000). Sometimes infected areoles of the host became swelled.

Hosts – *Rhizocarpon carpaticum*, *R. geographicum*, *R. cf. lecanorinum* (sterile), *Rhizocarpon* sp. (sterile, with yellow thallus) (always on thallus).

SPECIMENS EXAMINED (host species always on rocks). [Fb–14] – Góry Stołowe Mts, Szczeliniec Wielki Mt., c. 900 m, 50°29'05"N/16°20'19"E, on *R. cf. lecanorinum*, 07.10.2008, M. Kukwa 7270, M. Dimos-Zych, M. Oset (UGDA-L–14745). [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on *R. geographicum*, 17.07.2003, A. Flakus 527/1 (herb. Flakus); Mieguszowiecka Przełęcz pod Chłopkiem pass, 49°11'01"/20°03'56"E, 2307 m, on *Rhizocarpon* sp., 22.08.2005, A. Flakus 5497/1 (KRAM); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2115 m, on *Rhizocarpon* sp., 16.08.2003, A. Flakus 1797/1 (KRAM); ibidem, on *R. carpaticum*, A. Flakus s.n. (KRAM-L–52688, specimen of *R. carpaticum*).

***Endococcus perpusillus* Nyl. s.str.**

According to SÉRUSIAUX et al. (1999) the species is considered to be confined to *Schaereria tenebrosa*. In Poland it was so far reported from other hosts, therefore, *E. perpusillus* s.str. is reported for the first time for the country. Ascospores in the specimen A. Flakus 2703 are more similar in size to the holotype (15–16 × 6µm), but in the material found on *S. fuscocinerea* they were longer and narrower (16–19 × 5µm) and more similar to a sample reported by SANTESSON (1960) from Spain.

Hosts – *Schaereria fuscocinerea* (thallus), *Schaereria* sp. (thallus).

SPECIMENS EXAMINED. [**Ge–60**] – High Tatra Mts, Niżnie Rysy Mt., 49°11'00"N/20°05'17"E, 2430 m, on *Schaereria* sp. growing on rock, 20.07.2004, A. Flakus 2703 (KRAM); Wyznia Miękuszwowiecka Przełęcz pass, 49°11'12"N/20°03'48"E, 2330 m, on *S. fuscocinerea*, 30.08.2005, A. Flakus s.n. (KRAM-L–52826, specimen of *S. fuscocinerea*).

Endococcus perpusillus Nyl. s.lat.

The specimen cited below has been keyed out as *E. perpusillus* in the paper of IHLEN & WEDIN (2008), but that species is restricted to *Schaereria* species (see above). Our material is characterized by 150–200 µm wide, half to ¾ immersed perithecia and rather long, but relatively narrow ascospores, (18–)19–22(–27) × 5–6 µm. It seems it does not belong to any *Endococcus* species known so far on *Rhizocarpon* (see SÉRUSIAUX et al. 1999) and requires further studies.

Host – *Rhizocarpon badioatrum* (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Rysy Mt., 49°10'53"N/20°05'03"E, subnival belt, 2160 m, on rock, 20.07.2004, A. Flakus 2735 (KRAM).

Endococcus propinquus (Körb.) D.Hawskw. s.str.

So far *E. propinquus* s.str. has been known in Poland only from two confirmed records (see KUKWA & JABŁOŃSKA 2008). Several old Polish records referred to *E. propinquus* may belong to a distinct species provisionally called *E. aff. propinquus* (see below) or other taxa. For the characteristics of the species see SÉRUSIAUX et al. (1999) and KUKWA & CZARNOŃA (2006).

An additional specimen very similar to *E. propinquus* was found on the thallus of *Calvitimela armeniaca* (High Tatra Mts, A. Flakus 1502/1). However, we hesitate to include it in the concept of that fungus as the host seems to be not related to *Porpidia* (see LUMBSCH & HUHDORF 2007).

Host – *Porpidia speirea* var. *speirea* (thallus), *P. speirea* var. *prochsthallina* (thallus), *P. tuberculosa* (thallus), *P. zeoroides* (thallus).

SPECIMENS EXAMINED (host species always on rocks). [**Ge–34**] – Beskid Sądecki Mts, Kamień św. Kingi rock, 49°26'N/20°33'E, on *P. speirea* s.str., 18.08.1960, J. Nowak s.n. (KRAM-L–9233, specimen of *P. speirea*). [**Ge–50**] – High Tatra Mts, near Zadni Staw lake, upper part of Dolina Pięciu Stawów Polskich valley, 49°12'39"N/20°00'48"E, 1895 m, on *P. tuberculosa*, 18.08.2004, A. Flakus 3300 (KRAM); [**Ge–60**] – Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2115 m, on *P. speirea* var. *prochsthallina*, 16.08.2003, A. Flakus 1790/1 (herb. Flakus); Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on *P. speirea* s.str., 27.07.2003, A. Flakus 980/1 (KRAM); Rysy Mt., 49°10'53"N/20°05'03"E, 2160 m, on *P. tuberculosa*, 20.07.2004, A. Flakus 2729 (KRAM); Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on *P. zeoroides*, 24.08.2004, A. Flakus s.n. (KRAM-L–52458, specimen of *P. zeoroides*).

Endococcus* aff. *propinquus (Körb.) D.Hawskw.

So far the species was only reported from Poland by CZARNOŃA & KUKWA (2006) and KUKWA & JABŁOŃSKA (2008), always on *Porpidia* or sterile *Porpidia*-like thalli. Here it is reported from a new host genus, *Bellemerea*, which together with *Porpidia* (so far the commonest host genus of the species) was included in the former family Porpidiaceae (see ERIKSSON 2006), a synonym of Lecideaceae (see LUMBSCH & HUHDORF 2007). For the characteristics of the taxon see SÉRUSIAUX et al. (1999) and KUKWA & CZARNOŃA (2006).

Host – *Bellemerea* cf. *alpina* (thallus).

SPECIMEN EXAMINED. [**Ge–50**] – High Tatra Mts, near Zadni Staw lake, upper part of Dolina Pięciu Stawów Polskich valley, 49°12'39"N/20°00'48"E, 1895 m, on rock, 18.08.2004, A. Flakus 3304 (KRAM).

Endococcus rugulosus Nyl. s.lat.

The material referred to as *E. rugulosus* s.lat. is heterogenous and in the need of a modern revision. In her outstanding revision, TRIEBEL (1989) included in *E. rugulosus* specimens with brown, smooth-walled spores, 13–16 × 6–7.5 µm, growing on a wide range of lichens and our material is similar to that description. At present the name is supposed to be restricted to specimens with considerably smaller and verruculose ascospores growing on the species of *Verrucaria* (see SÉRUSIAUX et al. 1999, also KUKWA & CZARNOŃA 2006).

Host – *Aspicilia aquatica* (thallus).

SPECIMENS EXAMINED (host species always growing on rocks). [**Ge–60**] – High Tatra Mts, Rysy Mt., 49°10'53"N/20°05'03"E, 2140 m, on *Aspicilia aquatica*, 08.08.2003, A. Flakus s.n. (KRAM-L–48329); Rysy Mt., 49°10'53"N/20°05'03"E, 2160 m, on *Aspicilia aquatica*, 20.07.2004, A. Flakus 2724 (herb. Flakus).

Epibryon conductrix (Norman) Nik.Hoffm. & Hafellner

New to Poland.

Host – *Catapyrenium* sp. (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Mięguszowiecki Szczyt Mt., N slope, 49°11'20"N/20°03'34"E, 2100 m, on soil, 22.07.2004, A. Flakus 2775 (KRAM).

Epibryon solorinae (Vain.) Nik.Hoffm. & Hafellner

New to Poland.

Hosts – *Solorina bispora* var. *bispora* (thallus and apothecia), *S. bispora* var. *macrospora* (thallus), *S. saccata* (thallus).

SPECIMENS EXAMINED (host species always growing on soil). [**Ge–60**] – High Tatra Mts, Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2110–2115 m, on *S. bispora* var. *macrospora* and var. *bispora*, 16.08.2003, A. Flakus 1807/2 & 1840/1 (KRAM, herb. Flakus); ibidem, 49°11'21"N/20°02'59"E, 2105 m, on *S. bispora* var. *macrospora*, 24.07.2004, A. Flakus 2860/1 (UGDA); Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on *S. saccata*, 15.08.2004, A. Flakus 3104/1 (herb. Flakus).

Epicladonia sandstedei (Zopf) D.Hawksw.

Fairly common in Poland (see CZYŻEWSKA et al. 2005, CZARNOTA & WOJNAROWICZ 2008, KUKWA & JABŁOŃSKA 2008 and literature cited therein).

Host – *Cladonia rei* (podetia).

SPECIMEN EXAMINED. [**Ad–82**] – N of Mikoszewo village, Mewia Łacha NR, 54°21'N/23°05'N/18°57'50"E, on soil, 25.09.1999, K. Jando, M. Kukwa s.n. (UGDA-L–14728).

Epigloea urosperma Döbbeler

New to Poland.

Hosts – *Placynthiella dasea* (thallus), *P. uliginosa* (thallus), *Placynthiella* sp. (thallus).

SPECIMENS EXAMINED. [**Bc–25**] – Near Schodno village, by SE part of Motowęże lake, 54°03'N/17°51'E, on soil and rotten wood, 09.2006, A. Flakus 9944 & 9945 (KRAM, UGDA, herb. Flakus).

Epilichen scabrosus (Ach.) Clem.

So far the species is known in Poland only from the Tatra Mts (FLAKUS 2007 and literature cited therein).

Host – *Baeomyces* sp. (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Mięguszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on soil, 16.07.2004, A. Flakus 2570 (KRAM).

Everniicola flexispora D.Hawksw.

New to Poland and Central Europe. *Catolechia wahlenbergii* is a new host for the species. So far it has been reported from *Evernia prunastri* and *Nephroma arcticum* (HAWKSWORTH 1983, ALSTRUP & HAWKSWORTH 1990).

Host – *Catolechia wahlenbergii* (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Mięguszowiecki Szczyt Mt., 49°11'13"N/20°03'34"E, 2438 m, on saxicolous bryophytes, 16.08.2004, A. Flakus 3195 (KRAM).

Illosporium carneum Fr.

The species is considered to be an anamorph of *Pronectria robergei* (Mont. & Desm.) Lowen (see HAWKSWORTH & MIĄDLIKOWSKA 1997), but in the present collection it was associated with *P. erythrinella*. The host thallus might have been infected by those two taxa, but it is also possible that the name *I. carneum* is used for the anamorphs of several distinct species. The true anamorph-teleomorph connection of *I. carneum* and *Pronectria* spp. needs to be proved in cultures.

Host – *Peltigera didactyla* (thallus).

SPECIMEN EXAMINED. [Ad-70] – Sopot city, dunes E of Powstańców Warszawy street, 54°26'57"N/18°33'59"E, on soil, 30.05.2008, A. Budyś, B. Hajek s.n. (UGDA-L-14708, specimen of *Pronectria erythrinnella*).

Intralichen christiansenii (D.Hawksw.) D.Hawksw. & M.S.Cole

Rather widely distributed in Poland, but still under-recorded (see KUKWA & JABŁOŃSKA 2008).

Host – *Lecanora varia* (apothecia).

SPECIMEN EXAMINED. [Ge-60] – High Tatra Mts, Żabi Koń Mt., 49°10'43"N/20°04'48"E, 2291 m, host growing on thallus of saxicolous *Umbilicaria* sp., 01.09.2005, A. Flakus 5625/1 (KRAM).

Libertiella malmedyensis Spig. & Roum.

The species is rather rarely reported from Poland (CZYŻEWSKA 2003 and literature cited therein, FAŁTYNOWICZ & KUKWA 2007 and literature cited therein).

Host – *Peltigera* cf. *didactyla* (thallus).

SPECIMEN EXAMINED. [Ce-24] – Żaboklik village, 53°07'N/20°42'E, on soil, 28.09.1998, M. Kołakowska (UGDA-L-14724).

Licea parasitica (Zukal) Martin

A myxomycete rarely reported from Poland (DROZDOWICZ et al. 2003, KUKWA & JABŁOŃSKA 2008 and literature cited therein). Myxomycetes are sometimes overgrowing lichen thalli without being confined to particular hosts, therefore they can not be considered as typical true lichenicolous organisms.

Host – *Rinodina efflorescens* (thallus).

SPECIMEN EXAMINED. [Bd-42] – Lisewo forest district, fs no. 208, 53°50'50"N/18°58'20"E, between villages Małki and Ryjewo, on maple, 28.04.2002, M. Kukwa 1510a (UGDA).

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

Hosts – *Hypogymnia physodes* (thallus), *Parmeliopsis ambigua* (thallus), *Ramalina carpatica* (thallus), crustose epibryophytic lichen (thallus).

SPECIMENS EXAMINED. [Cg-55] – Białowiecki NP, fs no 398G, 52°42'N/23°49'E, on *H. physodes* growing on lime, 27.03.2001, M. Kukwa 166 (UGDA, specimen of *Tremella hypogymniae*, in mixed infection with *Phoma cytospora*); [Ea-89] – Karkonosze Mts, Karkonoski NP, Dolina Łomniczki valley, 50°45'N/15°45'E, between Schronisko nad Łomniczką tourist house and Betonowy Most bridge, on *Parmeliopsis ambigua* growing on willow, 07.09.2001, M. Kukwa 1160 (UGDA); vicinity of the junction of Wapniak and Płasawa streams, 50°46'05"N/15°43'15"E, on *H. physodes* growing on willow, 08.09.2001, M. Kukwa 1221 (UGDA); [Eb-80] – Karkonosze Mts, Karkonosze NP, c. 0.5 km SW of Karpacz Wilcza Poręba, 50°45'40"N/15°45'30"E, on *H. physodes* growing on willow, 07.09.2001, M. Kukwa 1150 (UGDA); [Ge-60] – High Tatra Mts, Szpiglasowy Wierch Mt., W ridge, 49°11'51"N/20°02'23"E, 2170 m, on crustose lichen growing on epilithic bryophytes, 20.07.2003, A. Flakus 739/1, (KRAM); Pośredni Mieguszowiecki Szczyt Mt., ridge SE, 49°11'04"N/20°03'50"E, 2360 m, on *Ramalina carpatica* growing on granite rock, 03.08.2003, A. Flakus 1180 (KRAM).

Lichenocodium lecanorae (Jaap) D.Hawksw.

It seems that the species is reported here for the first time from *Alectoria ochroleuca*, *Allantoparmelia alpicola* and *Catolechia wahlenbergii*.

Hosts – *Alectoria ochroleuca* (thallus), *Allantoparmelia alpicola* (thallus), *Catolechia wahlenbergii* (thallus), *Lecanora conizaeoides* (apothecia), *L. polytropa* (apothecia and thallus), cf. *Miriquidica* sp. (thallus), *Protoparmelia badia* (apothecia).

SPECIMENS EXAMINED. [Ac-56] – C. 0.5 km SE of Świetlino village, 54°36'N/17°54'E, on *Lecanora conizaeoides* growing on pine, 07.04.2001, M. Kukwa 599 (UGDA); [Ge-60] – High Tatra Mts, Miedziane Mt. 49°12'07"N/20°03'03"E, 2220 m, on *L. polytropa* and *Protoparmelia badia* growing on granite rock, 17.07.2003, A. Flakus 594/1 & 601/1 (KRAM); Szpiglasowy Wierch Mt., W ridge, 49°11'51"N/20°02'23"E, 2170 m, on *L. polytropa* and *Protoparmelia badia* growing on granite rock, 20.07.2003, A. Flakus 687/1 & 688 (KRAM, herb. Flakus); Czarny Mieguszowiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on *Alectoria ochroleuca* growing on soil, 21.07.2003, A. Flakus 768/1 (KRAM); Rysy Mt., 49°10'46"N/20°05'17"E, 2499 m, on *Allantoparmelia alpicola* growing on granite rock, 08.08.2003, A. Flakus 1326/2 (KRAM); Rysy Mt., 49°10'49"N/20°05'14"E, 2350 m, on cf. *Miriquidica* growing over saxicolous *Psorinia conglomerata*, 08.08.2003, A. Flakus 1433 (KRAM);

Pośredni Miegunzowiecki Szczyt Mt., 49°11'05"N/20°03'43"E, 2392 m, on *Catolechia wahlenbergii* growing on bryophytes and humus, 12.08.2003, A. Flakus 1633/1 (KRAM); Miegunzowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on *L. polytropa* growing on granite rock, 16.07.2004, A. Flakus 2574 (KRAM).

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

Second locality in Poland (KUKWA & KOWALEWSKA 2007).

Host – *Physcia tenella* (apothecia and thallus).

SPECIMEN EXAMINED. [Cg–55] – Białowiecki NP, fs no. 314D, 52°44'18"N/23°49'42"E, on branches of poplar, 13.05.2006, M. Kukwa 5126a (UGDA).

Lichenocodium pyxidatae (Oudem.) Petr. & Syd.

The species is quite common in Poland, though previously overlooked (KUKWA & KOWALEWSKA 2007, KUKWA & JABŁOŃSKA 2008 and literature cited therein).

Hosts – *Cladonia macroceras* (podetia), *Cladonia* sp. (squamules).

SPECIMENS EXAMINED (host species always growing on soil). [Af–98] – Sidory village, 54°16'15"N/22°55'55"E, on *Cladonia* sp., 19.08.1995, W. Fałtynowicz s.n. (UGDA-L–14727); [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on *Cladonia* sp., 15.07.2004, A. Flakus 2334 (herb. Flakus); Żabi Koń Mt., 49°10'43"N/20°04'48"E, 2291 m, on *C. macroceras*, 01.08.2005, A. Flakus 5590 (KRAM).

Lichenocodium xanthoriae M.S.Christ

In Poland, this species seems to be most abundant north-east of Vistula River (see SPARRIUS 2003, KUKWA & CZARNOTA 2006, KUKWA & JABŁOŃSKA 2008 and literature cited therein).

Host – *Xanthoria polycarpa* (apothecia).

SPECIMEN EXAMINED. [Cg–65] – Białowieża village, 52°42'18"N/23°51'13"E, on branches of willow, 01.04.2001, M. Kukwa 529 (UGDA).

Lichenodiplis lecanorae (Vouaux) Dyko & D.Hawksw.

Host – *Lecanora saligna* (apothecia).

SPECIMEN EXAMINED. [Bf–19] – Wigierski NP, between Wigry and Białe lakes, 54°01'40"N/23°05'50"E, in forest, on willow, 12.09.1984, J. Kiszka s.n. (UGDA-L–14721).

Lichenosticta alcicorniaria (Linds.) D.Hawksw.

Rare taxon in Poland, known only from few localities (SANDSTEDTE 1931, KUKWA & CZARNOTA 2006, KUKWA & KOWALEWSKA 2007, KUKWA et al. 2008).

Host – *Cladonia crispata* var. *cetrariiformis* (podetia).

SPECIMEN EXAMINED. [Ge–50] – High Tatra Mts, Żółta Turnia Mt., 49°14'11"N/20°01'42"E, 1800 m, on terricolous bryophytes, 17.08.2006, B. Cykowska 8194b (KRAM, herb. Flakus).

Llimoniella* aff. *adnata Hafellner & Nav.-Ros.

In our specimen ascospores were narrower [(2–)3–4 μm wide; (5–)6–7 μm in the protolog], asci shorter [40–45 μm long; 80–90 μm in the protolog] and host different (*Catapyrenium*; *Placidium* in the protolog) than reported for *L. adnata* (see HAFELLNER & NAVARRO-ROSINÉS 1993). It perhaps represents an undescribed species.

So far *Llimoniella adnata* was known only from Russia (DIEDERICH & ETAYO 2000) and the type locality in Spain (HAFELLNER & NAVARRO-ROSINÉS 1993), always on *Placidium* species.

Host – *Catapyrenium* sp. (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on soil, 15.08.2004, A. Flakus 3094 (KRAM); Hińczowa Przełęcz pass, 49°11'16"N/20°03'19"E, 2323 m, on soil, 01.08.2003, A. Flakus 1139 (KRAM).

Marchandiobasidium aurantiacum Diederich & Schultheis [syn. *Marchandiomyces aurantiacus* (Lasch) Diederich & Etayo]

Locally common, e.g. in NE Poland. It seems to prefer rather humid, although open habitats.

Hosts – *Xanthoria parietina*, *X. polycarpa* (thallus and apothecia).

SPECIMENS EXAMINED. [Ad-82] – Wyspa Sobieszewska island, c. 1 km N of Gdańsk Świbno town, 54°20'29"N/18°56'20"E, on *Acer negundo*, 13.01.2008, M. Kukwa 5945 & 5946 (UGDA-L-14387 & 14388);

Merismatium heterophractum (Nyl.) Vouaux

New to northern Poland. So far it has been reported only from one locality in the country (KUKWA & CZARNOTA 2006).

Host – *Bilimbia sabuletorum* (thallus).

SPECIMEN EXAMINED. [Af-98] – Sidory village, 54°16'15"N/22°55'55"E, growing on calcareous soil, 19.08.1995, W. Fałtynowicz s.n. (UGDA-L-14727).

Miriquidica intrudens (H.Magn.) Hertel & Rambold

New to Poland.

Hosts – crustose epilithic lichens (thallus).

SPECIMENS EXAMINED. [Ge-60] – Pośredni Mieguszowiecki Szczyt Mt., 49°11'53"N/20°03'43"E, 2392 m, on granite rock, 12.08.2003, A. Flakus 1671 (KRAM); Wyznia Spadowa Przełęczka pass, 49°11'15"N/20°05'20"E, 2222 m, on granite rock, 20.08.2005, A. Flakus 5413/2 (KRAM).

Minutoexcipula tuerkii Hafellner

New to Poland.

Host – *Pertusaria glomerata* (thallus).

SPECIMENS EXAMINED. [Ge-60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on terricolous bryophytes, 27.07.2003, A. Flakus 893/2 & 899 (KRAM, herb. Flakus).

Monodictys epilepraria Kukwa & Diederich

Lepraria vouauxii is a new host for that fairly common fungus in Poland (see KUKWA & JABŁOŃSKA 2008 and literature cited therein).

Hosts – *Lepraria incana*, *L. vouauxii* (thallus).

SPECIMENS EXAMINED. [Ac-86] – Staniszewskie Błoto NR, fs nos 228b/229g, on *L. cf. incana* growing on pine, 17.10.2006, M. Kukwa 5470a (UGDA); [Bc-38] – Wirty village, 53°54'N/18°23'E, on *L. incana* growing on oak, 11.06.2004, M. Kukwa 3280 (UGDA); [Ac-86] – Near Wetlina village, by Wielki Lutowy stream, 49°09'22'29"E, c. 750 m, on *L. vouauxii* growing on beech, 18.08.1958, Z. Tobolewski (POZ).

Muellerella erratica (A.Massal.) Hafellner & V.John [syn. *M. pygmaea* var. *athallina* (Müll.Arg.)

Triebel]

Common species in Polish Tatra Mts.

Hosts – *Lecanora polytropa* (apothecia and thallus), *Lecidea confluens* (thallus), *L. cf. swartzioidea* (thallus), epilithic sterile lichen (thallus), *Protoblastenia siebenhaariana* (thallus).

SPECIMENS EXAMINED (host species always growing on rocks). [Ge-50] – High Tatra Mts, Near Zadni Staw lake, 49°12'39"N/20°00'48"E, 1895 m, on sterile lichen, 18.08. 2004, A. Flakus 3289 (KRAM). [Ge-60] – High Tatra Mts, Szpiglasowy Wierch Mt., 49°11'51"N/20°02'23"E, 2170 m, on *Lecanora polytropa*, 20.07.2003, A. Flakus 666 & 690/1 (KRAM); Cubryna Mt., 49°11'16"N/20°03'15"E, 2370 m, on *L. polytropa*, 01.08.2003, A. Flakus 1067 (KRAM); Hińczowa Turnia Mt., 49°10'52"N/20°04'08"E, 2376 m, on *Lecidea cf. swartzioidea*, 11. 08.2003, A. Flakus 1516/2 (KRAM); Ciemnosmreczyńska Przełęczka pass, 49°11'19"N/20°03'06"E, 2135 m, on *L. confluens*, 16.08.2003, A. Flakus 1877/1 (herb. Flakus); Niżnie Rysy Mt., 49°11'00"N/20°05'17"E, 2430 m, on *Lecanora polytropa*, 15.07.2003, A. Flakus 468/1 (KRAM); Pośredni Mieguszowiecki Szczyt Mt., 49°11'05"N/20°03'43"E, 2392 m, on *L. polytropa*, 12.08.2003, A. Flakus 1714/1 (herb. Flakus); Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2105 m, on *Protoblastenia siebenhaariana*, 24.08.2004, A. Flakus s.n. (KRAM-L-51349, specimen of *Diplotomma alboatrum*, KRAM-L-52380, specimen of *Polyblastia thelodes*); Wyznia Spadowa Przełęczka pass, 49°11'15"N/20°05'20"E, 2222 m, on *Lecanora polytropa*, 20.08.2005, A. Flakus s.n. (KRAM-L-51510, specimen of *L. polytropa*).

Muellerella lichenicola (Sommerf.) D.Hawksw.

Quite often reported from Poland (see KUKWA & CZARNOTA 2006, CZARNOTA & WOJNAROWICZ 2008, KUKWA et al. 2008).

Hosts – *Xanthoria soreliata*, *Xanthoria* sp. (always on thallus).

SPECIMENS EXAMINED (host species always growing on mylonite rock). [Ge–60] – High Tatra Mts, Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on *Xanthoria* sp., 24.08.2004, A. Flakus 3532/1 (KRAM); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2115 m, on *X. soredata*, 07.08.2004, A. Flakus s.n. (KRAM-L–53213, specimen of *X. soredata*).

Muellerella pygmaea (Körb.) D.Hawksw.

A common species in the Polish Tatra Mts.

Hosts – *Bellemerea alpina* (apothecia and thallus), *Bellemerea* sp. (apothecia and thallus), *Fuscidea austera* (thallus), *Lecidea confluens* (thallus), *L. lapicida* var. *pantherina* (thallus), *L. lapicida* s.lat. (thallus), *L. swartzioidea* (thallus), *L. swartzioidea* s.lat. (thallus), *Lecidea* sp. (thallus).

SPECIMENS EXAMINED (all host species growing on rocks). [Ea–89] – Karkonosze Mts, Karkonosze NP, Pielgrzymy rocks, on *Fuscidea austera*, 08.09.2001, M. Kukwa 1211 (UGDA); [Ge–60] – High Tatra Mts, Mięguszwiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on *Lecidea* sp. and *Bellemerea* sp., 16.07.2004, A. Flakus 2598, 2600 & 2601 (KRAM, herb. Flakus); below Mięguszwiecka Przełęcz pod Chłopkiem pass, 49°11'02"N/20°03'55"E, 2300 m, on *Bellemerea alpina* and *Lecidea swartzioidea*, 03.08.2003, A. Flakus 1258/1 & 1260/1 (KRAM); Hińczowy Żleb gully, 49°11'10"N/20°03'21"E, 2200 m, on *Bellemerea* sp., 22.07.2004, A. Flakus 2809 (KRAM); Niżnie Rysy Mt., 49°11'00"N/20°05'17"E, 2430 m, on *Lecidea swartzioidea* s.lat., 20.07.2004, A. Flakus s.n. (KRAM-L–51787, specimen of *L. swartzioidea* s.lat.); Mięguszwiecki Szczyt Mt., 49°11'13"N/20°03'34"E, 2438 m, on *L. swartzioidea* s.lat., 17.08.2003, A. Flakus s.n. (KRAM-L–51776, specimen of *L. swartzioidea* s.lat.); Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on *L. swartzioidea*, 17.07.2003, A. Flakus 526 (KRAM); Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on *L. lapicida* s.lat., 21.07.2003, A. Flakus 758/1 (KRAM); below Kazalnica massif, 49°11'08"N/20°04'06"E, 2100 m, on *L. confluens*, 12.08.2003, A. Flakus 1727/1 (KRAM); Dwoisty Żleb gully, 49°12'03"N/20°04'44"E, 1680 m, on *Bellemerea* sp., 06.08.2004, A. Flakus 2989 (KRAM); Mięguszwiecki Szczyt Mt., 49°11'13"N/20°03'34"E, 2438 m, on *Lecidea* sp., 16.08.2004, A. Flakus 3205 (KRAM); Mięguszwiecka Przełęcz pod Chłopkiem pass, 49°11'01"N/20°03'56"E, 2307 m, on *L. swartzioidea* s.lat., 21.07.2003, A. Flakus s.n. (KRAM-L–51734); Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'30"E, 2409 m, on *Bellemerea alpina*, 11.08.2003, A. Flakus s.n. (KRAM-L–50883, specimen of *Bellemerea alpina*); Cubryna Mt., E ridge, 49°11'16"N/20°03'15"E, 2370 m, on *Lecidea lapicida* var. *pantherina*, 01.08.2003, A. Flakus 1060/1 (KRAM).

Muellerella ventosicola (Mudd) D.Hawksw.

Rather common in the Polish Tatra Mts. In one specimen (A. Flakus 1709), the perithecia were smaller (up to 150 µm) than stated by TRIEBEL (1989) (200–250 µm).

Hosts – *Aspicilia* sp., *Ophioparma ventosa*, *Rhizocarpon geographicum*, *Rhizocarpon* sp., epilithic crustose lichen (always on thallus).

SPECIMENS EXAMINED (host species always growing on rocks). [Ge–60] – The High Tatra Mts, Wyżnia Białczańska Przełęcz pass, 49°11'20"N/20°05'13"E, 2085 m, on *Ophioparma ventosa*, 20.08.2005, A. Flakus 5454/1 (herb. Flakus); Mięguszwiecka Przełęcz pod Chłopkiem pass, 49°11'01"N/20°03'56"E, 2307 m, on *O. ventosa*, 21.07.2003, A. Flakus 853/1 (KRAM); Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on sterile lichen, 27.07.2003, A. Flakus 948 (KRAM); Przełęczka pod Zadnim Mnichem pass, 49°11'19"N/20°03'06"E, 2135 m, on *Rhizocarpon* sp., 15.08.2004, A. Flakus 3174 (KRAM); Szpiglasowy Wierch Mt., W ridge, 49°11'51"N/20°02'23"E, 2170 m, on *R. geographicum*, 20.07.2003, A. Flakus s.n. (KRAM-L–52695, specimen of *R. geographicum*); Ciemnosmreczyńska Przełęczka pass, 49°11'19"N/20°03'06"E, 2135 m, on *R. geographicum*, 16.08.2003, A. Flakus s.n. (KRAM-L–52723); Pośredni Mięguszwiecki Szczyt Mt., 49°11'05"N/20°03'43"E, 2392 m, on *Aspicilia* sp., 12.08.2003, A. Flakus 1709 (KRAM).

Niesslia peltigericola (D.Hawksw.) Etayo [syn. *Raciborskiomyces peltigericola* (D.Hawksw) M.E.Barr]

New to Poland. The fungus has been reported to be specific of *Peltigera* (see HAWKSWORTH & MIADLIKOWSKA 1997), usually growing on decaying thalli of the host. This may suggest a rather loose connection with the host. Our specimen is the first record of that fungus from another host genus.

Host – *Lichenomphalia* cf. *umbellifera* (thallus).

SPECIMEN EXAMINED. [Gd–69] – West Tatra Mts, Smreczyński Wierch Mt., 49°12'21"N/19°52'53"E, alpine belt, 1950 m, on terricolous bryophytes, 28.07.2005, B. Cykowska 3668b (herb. Flakus).

Opegrapha geographicola (Arnold) Hafellner

New to Poland.

Host – *Rhizocarpon badioatrum* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Rysy Mt., 49°10'53"N/20°05'03"E, 2160 m, on granite rock, 20.07.2004, A. Flakus 2740/1 (KRAM, herb. Flakus).

Opegrapha glaucomaria (Nyl.) Källsten

New to Poland.

Host – *Protoparmelia badia* (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Wyżnia Mięguszwiecka Przełęcz pass, 49°11'12"N/20°03'48"E, 2330 m, on rock, 30.08.2005, A. Flakus 5537/1 (herb. Flakus); Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on granite rock, 11.08.2003, A. Flakus s.n. (KRAM-L–52516, specimen of *P. badia*).

Pezizella epithallina (W.Phillips & Plawr.) Sacc.

Fourth locality in Poland (KOWALEWSKA & KUKWA 2003, KUKWA & JABŁONSKA 2008).

Host – *Peltigera didactyla* (thallus).

SPECIMEN EXAMINED. [Bd–43] – C. 0.25 km N of Nowa Wieś village, on soil, 15.04.2001, M. Kukwa 610 (UGDA).

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

Hosts – *Cladonia* sp., *C. macilenta* (squamules).

SPECIMENS EXAMINED. [Ac–86] – Kurze Grzędy NR, fs Nos 102d, 102h and 102j, 54°33'N/17°58'E, on wood or bark of stump, 26.05.2005, M. Kukwa 4141a, 4150 & 4158 (UGDA); ibidem, fs no. 135h, on wood, 27.05.2005, M. Kukwa 4209 (UGDA).

Phaeospora rimosicola (Leight. ex Mudd) Hepp

So far only old records have been known from Poland (see KOERBER 1865, STEIN 1879, EITNER 1901).

Host – *Rhizocarpon petraeum* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on mylonite rock, 15.07.2004, A. Flakus s.n. (KRAM-L–52763, specimen of *R. petraeum*).

Phaeosporobolus alpinus R.Sant., Alstrup & D.Hawksw.

New to Poland. Our specimen agrees well with the description by ALSTRUP & HAWKSWORTH (1990), except the conidia, which are typically 10–15 µm in diam, but 4–6-celled with individual cells 4–6 µm in diam. ALSTRUP & HAWKSWORTH (1990) reported that the conidia consisted of 10–20 cells, each 3–4 in diam. In terms of cell size and its number per conidium, the specimen is similar to conidia of *Ph. usneae* D.Hawksw. & Hafellner (HAWKSWORTH & HAFELLNER 1986). We also examined four specimens of the latter species growing on *Platismatia glauca*, *Pseudevernia furfuracea* and *Usnea filipendula* and only in one specimen conidia had the typical size [17–25 µm in diam; 15–25 µm according to HAWKSWORTH & HAFELLNER (1986)] and the number of cells per conidium [10; 6–12 according to HAWKSWORTH & HAFELLNER (1986)]. In all three remaining samples, the conidia deviated in size (up to 10 µm in diam) or number of cells (up to 30 cells). It seems that the variation within both species is not completely known.

Our specimen of *P. alpinus* has a similar number of cells per conidium as *P. minutus* Etayo, recently described from South America (ETAYO & SANCHO 2008), but that species has smaller (6.5–10.5 × 5–8 µm) conidia.

Host – *Pertusaria melanochlora* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on mylonite rock, 27.07.2003, A. Flakus s.n. (KRAM-L–48319, specimen of *P. melanochlora*).

Phoma cytospora (Vouaux) D. Hawksw.

Quite common species in Poland, but still under-recorded (e.g. CZYZEWSKA 2003, KUKWA 2004, KUKWA & JABŁOŃSKA 2008).

Host – *Hypogymnia physodes* (thallus).

SPECIMEN EXAMINED. [Cg–55] – Białowiecki NP, fs no. 398G, 52°42'N/23°49'E, on lime, 27.03.2001, M. Kukwa 166 (UGDA, specimen of *Tremella hypogymniae*, in mixed infection with *Lichenocodium erodens*).

Phoma denigricans Hafellner

New to Poland.

Host – *Lecanora epibryon* (apothecia).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on terricolous bryophytes, 27.07.2003, A. Flakus 936 (KRAM).

Polycoccum bryonthae (Arnold) Vězda

New to Poland.

Host – *Caloplaca tirolensis* (apothecia).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on plant debris, 27.07.2003, A. Flakus 892/1 (KRAM).

Polycoccum peltigerae (Fuckel) Vězda

New to northern Poland. So far known only from few localities in the southern part of the country (STARMACHOWA & KISZKA 1965, FAŁTYNOWICZ 2003 and literature cited therein).

Host – *Peltigera didactyla* (thallus).

SPECIMEN EXAMINED. [Bd–43] – C. 0.25 km N of Nowa Wieś village, 53°53'N/18°59'E, on soil, 15.04.2001, M. Kukwa 610a (UGDA).

Polycoccum sporastatae (Anzi) Arnold

New to Poland.

Host – *Sporastatia polyspora* (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowy Wierch Mt., W ridge, 49°11'51"N/20°02'23"E, 2170 m, on granite rock, 20.07.2003, A. Flakus 685/1 (KRAM); below Mięguszowiecka Przełęcz pod Chłopkiem pass, 49°11'02"N/20°03'55"E, 2300 m, on mylonite rock, 03.08.2003, A. Flakus 1250/1 (herb. Flakus); Czarny Mięguszowiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on granite rock, 11.08.2003, A. Flakus 1554/1 (UGDA); Cubryna Mt., 49°11'16"N/20°03'13"E, 2375 m, on granite rock, 23.08.2003, A. Flakus 2182/1 (KRAM); Hińczowy Żleb gully below Hińczowa Przełęcz pass, 49°11'10"N/20°03'21"E, 2250 m, on rock, 17.08.2003, A. Flakus s.n. (KRAM-L–52938, specimen of *S. polyspora*).

Pronectria erythrinella (Nyl.) Lowen

Rare fungus in Poland (CZYZEWSKA 2003, FAŁTYNOWICZ 2003 and literature cited therein).

Host – *Peltigera didactyla* (thallus).

SPECIMEN EXAMINED. [Ad–70] – Sopot city, 54°26'57"N/18°33'59"E, on soil, 30.05.2008, A. Budyś, B. Hajek s.n. (UGDA-L–14708).

Pronectria robergei (Mont. & Desm.) Lowen

Rather uncommon fungus in Poland (e.g. KUKWA 2004, 2005, KUKWA & JABŁOŃSKA 2008).

Host – *Peltigera extenuata* (thallus).

SPECIMEN EXAMINED. [Bc–58] – Błędno village, by Wda river, 53°42'09"N/18°21'00"E, on soil, 18.07.2002, M. Kukwa 1607 (UGDA).

Rhagadostoma boleaе Nav.-Ros. & Hladún

New to Poland and Central Europe. So far the species has been reported only from Spain (NAVARRO-ROSINÉS & HLADÚN 1994).

Host – *Caloplaca ammiospila* (thallus).

SPECIMENS EXAMINED. [**Ge–60**] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on terricolous bryophytes, 27.07.2003, A. Flakus 896/1 (KRAM); ibidem, 2105 m, on terricolous bryophytes, 24.08.2004, A. Flakus 3326/1 (herb. Flakus).

Rhagadostoma lichenicola (De Not.) Keissl.

Rare species in Poland (see FAŁTYNOWICZ 2003 and literature cited therein).

Host – *Solorina crocea* (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on soil, 17.07.2003, A. Flakus 557/1 (KRAM, herb. Flakus).

Rhagadostoma rugosum Nav.-Ros. & Hladún

New to Poland and Central Europe. So far the species has been reported only from the British Isles and Spain (NAVARRO-ROSINÉS & HŁADÚN 1994, HAWKSWORTH 2003).

Host – *Verrucaria* sp. (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Hińczowy Żleb gully, 49°11'10"N/20°03'21"E, 2200 m, on mylonite rock, 22.07.2004, A. Flakus 2826/1 (KRAM).

Rhizocarpon viridiatrum (Wulfen) Körb.

The species has been already reported from Poland, but so far never as lichenicolous (see FAŁTYNOWICZ 2003). In our specimen apothecia of the fungus were found in the cavities among host areoles. Most of them were associated with very few yellow areoles growing on the sides of the cavities.

Host – crustose epilithic lichen (thallus).

SPECIMEN EXAMINED. [**Ge–60**] – High Tatra Mts, Mała Galeria Cubryńska, subnival belt, 2040 m, on granite rock, 17.08.2003, A. Flakus 2069 (KRAM).

Sagediopsis fissurisedens Hafellner

New to Poland.

Host – *Aspilea myrinii* (thallus).

SPECIMENS EXAMINED. [**Ge–60**] – High Tatra Mts, Czarny Mięguszowiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on granite rock, 11.08.2003, A. Flakus 1598/1 (KRAM); Mięguszowiecki Szczyt Mt., 49°11'13"N/20°03'34"E, 2438 m, on granite rock, 17.08.2003, A. Flakus 1975/1 & 1987/1 (KRAM, herb. Flakus), A. Flakus s.n. (KRAM-L-50846, specimen of *A. myrinii*); Cubryna Mt., 49°11'16"N/20°03'13"E, 2375 m, on granite rock, 23.08.2003, A. Flakus 2186/1 (UGDA).

Sclerococcum sphaerale (Ach.) Fr.

Rarely reported from Poland (see KUKWA & CZARNOŃA 2006).

Host – *Pertusaria* sp. (thallus).

SPECIMENS EXAMINED. [**Ge–60**] – High Tatra Mts, Żabi Koń Mt., 49°10'43"N/20°04'48"E, 2291 m, on granite rock, 01.09.2005, A. Flakus 5622/1 (herb. Flakus).

Scutula dedicata Triebel, Wedin & Rambold

Third locality in Poland (KUKWA 2005, KUKWA & ADAMSKA 2006).

Host – *Peltigera didactyla* (thallus).

SPECIMEN EXAMINED. [**Ce–24**] – Żaboklik village, 53°07'N/20°42'E, on soil, 28.09.1998, M. Kołakowska s.n. (UGDA-L-14729).

Sphaerellothecium atryneae (Arnold) Cl.Roux & Triebel

New to Poland. *Lecanora rupicola* s.lat. and *L. swartzii* subsp. *nylanderii* are new hosts for the species.

Hosts – *Lecanora rupicola* (thallus), *L. rupicola* subsp. *subplanata* (thallus and apothecia), *L. swartzii* subsp. *nylanderii* (apothecia).

SPECIMENS EXAMINED. [**Ge–60**] – High Tatra Mts, Czarny Mięguszowiecki Szczyt Mt., 49°10'58"N/20°04'03"E, subnival belt, 2409 m, on *L. rupicola* growing on granite rock, 11.08.2003, A. Flakus 1606 (KRAM); ibidem, on *L. rupicola* subsp. *subplanata*, 21.07.2003, A. Flakus 808/1 (herb. Flakus); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2115 m, *L. swartzii* subsp. *nylanderii* growing on mylonite rock, 16.08.2003, A. Flakus s.n. (KRAM-L-51537).

Sphaerellothecium cladoniae (Alstrup & Zhurb.) Hafellner

New to Poland.

Host – *Cladonia coccifera* (squamules).

SPECIMENS EXAMINED. [Ge–50] – Dolina Waksmundzka valley, slope below Przełęcz Wołoszyńska pass, 49°13'57"N/20°03'12"E, alpine belt, 1930 m, on terricolous bryophytes, 20.08.2006, B. Cykowska 8359c (herb. Flakus); [Ge–60] – High Tatra Mts, Wyżnia Spadowa Przełęczka pass, 49°11'15"N/20°05'20"E, 2222 m, on soil, 20.08.2005, A. Flakus s.n. (KRAM-L–51196).

Sphaerellothecium contextum Triebel

New to Poland.

Host – *Protoparmelia badia* (thallus and apothecia).

SPECIMENS EXAMINED (host species growing always on rock). [Ge–60] – High Tatra Mts, Hińczowa Turnia Mt., 49°10'52"N/20°04'08"E, 2376 m, 11.08.2003, A. Flakus 1516/1 (herb. Flakus); Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, 11.08.2003, A. Flakus 1581 (KRAM); Cubryna Mt., 49°11'16"N/20°03'13"E, 2375 m, 23.08.2003, A. Flakus 2136/1 (herb. Flakus); Cubryna Mt., E ridge, 49°11'16"N/20°03'15"E, 2370 m, 01.08.2003, A. Flakus 1051/1 & 1052 (KRAM, UGDA).

Sphaerellothecium minutum Hafellner

From Poland so far reported only by ALSTRUP & OLECH (1996). Probably quite common above upper timber line in the Tatra Mts.

Host – *Sphaerophorus fragilis* (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowy Wierch Mt., W ridge, 49°11'51"N/20°02'23"E, 2170 m, in granite crack, 20.07.2003, A. Flakus 680/1 (KRAM); Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, in rock crack, 27.07.2003, A. Flakus 992/1 (KRAM); Hińczowy Żleb gully below Hińczowa Przełęcz pass, 49°11'10"N/20°03'21"E, 2250 m, on mylonite rock, 17.08.2003, A. Flakus 2016/1 (KRAM); Wyżnia Białczańska Przełęcz pass, 49°11'20"N/20°05'13"E, 2085 m, on granite and mylonite rocks, 20.08.2005, A. Flakus 5428/1 & 5435/1 (herb. Flakus); Cubryna Mt., 49°11'16"N/20°03'13"E, 2375 m, on saxicolous bryophytes and granite rock, 23.08.2003, A. Flakus 2167/1 (herb. Flakus); Wyżnia Mięguszwiecka Przełęcz pass, 49°11'12"N/20°03'48"E, 2330 m, on saxicolous bryophytes, 30.08.2005, A. Flakus 5581 (KRAM).

Spirographa fusisporella (Nyl.) Zahlbr.

New to Poland.

Host – *Pertusaria corallina* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Czarny Mięguszwiecki Szczyt Mt., 49°10'58"N/20°04'03"E, subnival belt, 2409 m, on granite rock, 21.07.2003, A. Flakus 810/1 (KRAM).

Stigmidium cerinae Cl.Roux & Triebel

So far reported from Poland as *S. caloplacae* Alstrup & Olech (ALSTRUP & OLECH 1996), a later synonym of *S. cerinae* (see HALICI & HAWKSWORTH 2007).

Host – *Caloplaca cerina* s.lat. (apothecia).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on terricolous bryophytes, 27.07.2003, A. Flakus 947, 957/2, 960/2 & 962 (KRAM, UGDA, herb. Flakus); 2105 m, on terricolous bryophytes, 24.08.2004, A. Flakus 3326/2, 3379, 3418/1, 3426 & 3431/2 (KRAM).

Stigmidium cladoniicola Zhurb. & Diederich

New to Poland and Central Europe. So far known only from the type locality (ZHURBENKO & DIEDERICH 2008) and Estonia (SUIJA et al. 2008).

Host – *Cladonia pyxidata* s.lat. (squamules and podetia).

SPECIMENS EXAMINED. [Ge–50] – High Tatra Mts, Zawrat pass, 49°13'15"N/20°01'03"E, 2150 m, on soil, 18.08.2004, A. Flakus 3277 (KRAM); [Ge–60] – Mięguszwiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on soil, 16.07.2004, A. Flakus 2526 (herb. Flakus); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2105 m, on soil, 24.07.2004, A. Flakus 2872/1 (KRAM).

Stigmidium frigidum (Sacc.) Alstrup & D.Hawksw.

New to Poland.

Host – *Thamnolia vermicularis*.

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on soil, 15.07.2004, A. Flakus 2458/1 (herb. Flakus); Mięgoszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on soil, 16.07.2004, A. Flakus 2545 (KRAM).

Stigmidium gyrophorarum (Arnold) D.Hawksw.

New to Poland.

Host – *Umbilicaria cylindrica* (thallus).

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Czarny Mięgoszowiecki Szczyt Mt., 49°10'58"N/20°04'03"E, 2409 m, on granite rock, 21.07.2003, A. Flakus 816/2 (herb. Flakus); Cubryna Mt., 49°11'16"N/20°03'13"E, 2375 m, on granite rock, 23.08.2003, A. Flakus 2163 (KRAM).

Stigmidium leprariae Zhurb.

New to Poland and Central Europe. So far the species was known only from the type locality in Norway (ZHURBENKO 2007).

Host – *Lepraria neglecta*.

SPECIMENS EXAMINED. [Ge–60] – High Tatra Mts, Mięgoszowiecki Szczyt Mt., 49°11'20"N/20°03'34"E, 2100 m, on plant debris and terricolous bryophytes, 22.07.2004, A. Flakus 2783/1 (herb. Flakus).

Stigmidium mycobilimbiae Cl.Roux, Triebel & Etayo

So far reported in Poland only from Gorce Mts (CZARNOTA & KUKWA 2004) and Tatra Mts (KUKWA 2005, FLAKUS 2007).

Hosts – *Bilimbia accedens*, *B. lobulata*, *B. sabuletorum*, *Bilimbia* sp. (always on the thallus).

SPECIMENS EXAMINED (host species growing always on terricolous bryophytes). [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2105 m, on *Bilimbia* sp. and *B. sabuletorum*, 24.08.2004, A. Flakus 3341 & 3374/1 (KRAM, herb. Flakus); ibidem, on *B. accedens*, A. Flakus s.n. (KRAM-L-50922, specimen of *B. accedens*); Ciemnosmreczyńska Przełęczka pass, 49°11'21"N/20°02'59"E, 2110 m, on terricolous bryophytes, on *B. sabuletorum*, 16.08.2003, A. Flakus 1848/2 (KRAM); Mięgoszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on *Bilimbia* sp. and *B. lobulata*, 16.07.2004, A. Flakus 2552/1 & 2577/1 (KRAM, ZAMU).

Taeniolella atricerebrina Hafellner

New to Poland.

Host – *Tephromela atra* (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2110 m, on rock, 17.07.2003, A. Flakus 532/1 & 522/1 (KRAM, herb. Flakus).

Taeniolella beschiana Diederich

The commonest fungus inhabiting *Cladonia* species in the country (KUKWA & KOWALEWSKA 2007, KUKWA & JABŁONSKA 2008).

Host – *Cladonia* sp. (squamules).

SPECIMEN EXAMINED. [Ge–41] – Rów Podtatrzański depression, Bukowina Tatrzańska village, 49°20'N/20°06'E, Olczański Wierch Mt., 985 m, on wood, 18.08.1967, J. Kiszka s.n. (UGDA-L-14319).

Thamnogalla crombiei (Mudd) D.Hawksw.

New to Poland.

Host – *Thamnolia vermicularis*.

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Mięgoszowiecka Przełęcz pod Chłopkiem pass, 49°11'09"N/20°03'55"E, 2307 m, on soil, 16.07.2004, A. Flakus 2551 (KRAM).

Thelocarpon epibolum Nyl.

Quite common in Poland, reported also as non-lichenicolous (e.g. FAŁTYNOWICZ 2003 and literature cited therein, KOŚCIELNIAK 2004, KUKWA 2005, FLAKUS 2006, 2007, FAŁTYNOWICZ & KUKWA 2007 and literature cited therein).

According to KOCOURKOVÁ (2000) *T. epibolum* s.lat. comprises two taxa, *T. epibolum* s.str. and *T. epithallinum* Leigh. ex Nyl. [syn. *T. epibolum* (Leigh. ex Nyl.) G. Salisb.], but during our studies on lichenicolous and non-lichenicolous material we found intermediate specimens. The problem needs further studies conducted on collections from the entire distribution range.

Host – *Baeomyces rufus* (squamules).

SPECIMEN EXAMINED. [Eb–80] – Karkonosze Mts, Karkonosze NP, Dolina Łomniczki valley, ca. 1.5 km SW of Karpacz Wilcza Poręba, 50°45'N/15°45'E, shaded forest, on rock, 02.05.2002, M. Kukwa 1521 (UGDA).

Tremella cladoniae Diederich & M.S.Christ.

Most probably a hygrophilous species (see KUKWA & KOWALEWSKA 2007).

Host – *Cladonia ochrochlora* (squamules).

SPECIMENS EXAMINED. [Ad–80] – Źródlika w Dolinie Ewy NR, 54°25'N/18°32'E, on black alder, 31.08.2002, M. Zakrzewska s.n. (UGDA-L–9279); [Cg–55] – Białowieża NP, fs no. 340B, 52°44'18"N/23°49'42"E, on dead black alder, 13.05.2006, M. Kukwa 5124 (UGDA).

Tremella hypogymniae Diederich & M.S.Christ.

Host – *Hypogymnia physodes* (thallus).

SPECIMEN EXAMINED. [Cg–55] – Białowiecki NP, fs no. 398G, on lime, 27.03.2001, M. Kukwa 166 (UGDA).

Tremella lichenicola Diederich

Host – *Mycoblastus fucatus* (thallus).

SPECIMENS EXAMINED. [Ac–86] – Kurze Grzędy NR, fs no. 102f, on birch, 26.05.2005, M. Kukwa 4130 (UGDA); ibidem, fs no. 134k, on birch and rowan, 27.05.2005, M. Kukwa 4275 & 4287 (UGDA).

Vouauxiella lichenicola (Linds.) Petr. & Syd.

Host – *Lecanora chlarotera* (apothecia).

SPECIMEN EXAMINED. [Bd–43] – C. 1 km W of Pierzchowice village, 53°50'20"N/19°07'08"E, on maple, 10.03.2002, M. Kukwa 1352 (UGDA-L–14834).

Xanthoriicola physciae (Kalchbr.) D.Hawksw.

Host – *Xanthoria parietina* (apothecia).

SPECIMENS EXAMINED. [Ad–81] – Górski Wschodnie village, 54°21'30"N/18°47'27"E, on concrete, 01.05.1994, J. Miądlkowska s.n. (UGDA-L–14719); [Ge–33] – Pieniny Mts, Krościenko town, by Trzy Korony Street, 49°26'25"N, 20°25'21"E, on maple, 02.05.2008, M. Kukwa 5963 (UGDA-L–14693).

Zwackhiomyces berengerianus (Arnold) Grube & Triebel

New to Poland.

Host – *Mycobilimba* cf. *berengeriana* (sterile) (thallus).

SPECIMEN EXAMINED. [Ge–60] – High Tatra Mts, Szpiglasowa Przełęcz pass, 49°11'53"N/20°02'34"E, 2107 m, on soil, 15.07.2005, A. Flakus 2469/4 (herb. Flakus), ibidem, 2105 m, on soil, 24.08.2004, A. Flakus 3348 (KRAM).

Zwackhiomyces diderichii D.Hawksw. & Iturr.

New to Poland. The species was recently distinguished from the misunderstood *Z. cladoniae* (C.W.Dodge) Diederich (HAWKSWORTH & ITURRIAGA 2006). Both species can be most easily differentiated by the ascospore size, 10–12.5 × 3.5–4 μm in *Z. diderichii* and 12–19 × 3–5 μm in *Z. cladoniae* (HAWKSWORTH & ITURRIAGA 2006).

ZHURBENKO & ALSTRUP (2004) included *Z. cladoniae* in their key, however, the ascospore measurements are typical for *Z. diderichii* (see HAWKSWORTH & ITURRIAGA 2006). Also *Z. dispersus* s.lat.

growing on *Cladonia* was added to the key (see ZHURBENKO & ALSTRUP 2004), but the specimens referring to that information may belong to the true *Z. cladoniae*.

Host – *Cladonia* cf. *ochrochlora* (squamules).

SPECIMEN EXAMINED. [Gf–58] – Bieszczady Zachodnie Mts, Smerek village, 49°10'50"N/22°29'15"E, 500 m, on on bark, 25–26.09.1998, B. Krzewicka 192 (KRAM-L–46656, specimen of *Cladonia chlorophaea*).

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