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LICHENICOLOUS FUNGI OF THE CZECH REPUBLIC (THE FIRST COMMENTED CHECKLIST)

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Abstract. Based on the study of specimens from quoted institutional herbaria, private collections, the author's collections and on analysis of literature records; 156 lichenicolous fungi and lichens are reported from the Czech Republic, 70 for the first time. Four species, so far known from the type localities only, were also found: *Arborillus llimonae, Keissleriomyces sandstedeanus, Sclerococcum epiphytorum* and *Sclerococcum verrucisporum*; six species are reported for the first time from Central Europe: *Clypeococcum cladonema, Cornutispora triangularis, Didymellopsis collematum, Polycoccum kerneri, Sphaerellothecium coniodes* and *Stigmidium neofusceliae*; several very rare species are also reported: *Endococcus verrucosus, Epicladonia stenospora, Roselliniella microthelia, Roselliniopsis groedensis, Sclerococcum leuckertii, Taeniolella beschiana*, and *Taeniolella cladinicola*, all of which were collected in the Czech Republic. *Dactylospora lobariella, Phaeopyxis punctum, Phaeospora parasitica, Trimmatostroma lichenicola* and *Vezdaea retigera* are new for the Slovak Republic. Notes to problematic species, a rough sketch of the world distributions of every species, extensive references to literature, microphotographs of rare and interesting species, as well as both fungus and host indices are provided.

■ Lichenicolous fungi, Ascomycetes, Basidiomycetes, Coelomycetes, Hyphomycetes, Czech Republic.

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Contents

Introduction

Lichenological exploration in the Czech Republic during the past 175 years and the author's intensive field study during the past five years resulted in four previous papers and in this summarization of our current knowledge of lichenicolous fungi of the Czech Republic. With the exception of three papers by Dr. Vězda concerning this group, these fungi have never been systematically studied in the Czech Republic before and individual records have been published occasionally only. As many as possible of scientific publications containing information on lichenicolous fungi in the Czech Republic have been critically analysed and used for compiling the checklist. Many records were supported by revision of herbarium specimens.

During this study the author has also attempted to collect and observe as many species of lichenicolous fungi in their natural habitats as possible because such observations yield insights into their ecological requirements. Special attention has been paid to fungi growing in xerothermic localities, especially in the Biosphere Reserve Křivoklátsko in Central Bohemia and in the Podyjí National Park in Southern Moravia.

Furthermore, the author has also preferred to collect in nature reserves all over the Czech Republic (see Fig. 1, p. 169). As many as possible of specimens from my own field study and specimens kindly given to me by other scientists were identified and included in the checklist, too.

A total of 148 lichenicolous fungi and 26 lichenicolous lichens are currently accepted in the Czech Republic, based on the revised herbarium specimens and reliable literature records. Twenty taxa are excluded as dubious reports and reports that are based on misidentifications. Forty one lichenicolous fungi and 11 lichenicolous lichens (including 3 so far unpublished records) of the 69 lichenicolous fungi and 20 lichenicolous lichens reported before the beginning of this study in 1995 are confirmed by current collections to occur in the Czech Republic so far. A total of 115 lichenicolous fungi and 18 lichenicolous lichens (including 3 unpublished) are actual records in the last 5 years. Sixty nine lichenicolous fungi and 2 lichenicolous lichens are reported from the area of study for the first time (the anamorph with its teleomorph are counted as one taxon).

Real number of lichenicolous fungi in the Czech Republic is, of course, significantly higher, since there are unidentified specimens and so far undescribed species in the author's collection; very probably there are also many so far undiscovered species, explicitly those which occur in the vicinity of our borders. It is also very much possible that also exist additional records in overlooked literature or in reports where the locality information is unclear. Many old specimens remain to be examined.

Some lichenicolous fungi treated in this paper are lichenized. Such taxa are either slightly lichenized, ephemerous or they live as obligate parasites. Since the study of lichenicolous lichens was not the subject of this paper such taxa are included only occasionally (7 species); an ordinary list of these 26 species occurring in the Czech Republic follows below here. Full references to the distribution of most lichenicolous lichens in the Czech Republic are listed by Vězda and Liška (1999).

Lichenicolous lichens occurring in the Czech Republic:

Arthrorhaphis citrinella (ACH.) POELT, *A. grisea* TH. FR., *A.. muddii* OBERMAYER, *Buellia aethalea* (ACH.) TH. FR., *B. badia* (FR.) A. MASSAL., *B. nivalis* (BAGL. et CARESTIA) HAFELLNER, *B. uberior* ANZI, *Caloplaca grimmiae* (NYL.) H. OLIVIER, *C. magnifilii* POELT, *Carbonea assimilis* (KÖRB.) HAFELLNER et HERTEL, *C. distans* (KREMPELH.) HAFELLNER et OBERMAYER, *Diploschistes muscorum* (SCOP.) R. SANT., *Epilichen scabrosus* (ACH.) CLEM., *Lecanora gisleriana* MÜLL. ARG., *Lecidea variegatula* NYL., *Placocarpus schaereri* (FR.) O. BREUSS, *Polysporina lapponica* (ACH. ex SCHAER.) DEGEL., *Protoparmelia phaeonesos* POELT, *Rhizocarpon parasiticum* EITNER, *R. viridiatrum* (WULFEN) KÖRB., *Rimularia furvella* (NYL. ex MUDD) HERTEL et RAMBOLD, *R. insularis* (NYL.) RAMBOLD et HERTEL, *Scutula dedicata* TRIEBEL, WEDIN et RAMBOLD, *Vezdaea acicularis* COPPINS, *V. retigera* POELT et DÖBBELER and *V. rheocarpa* POELT et DÖBBELER.

Accepted lichenicolous fungi and lichens treated in the chapter "Results" (well documented and reliable literature reports only) belong to the following genera:

Ascomycetes: *Abrothallus, Arthonia, Arthopyrenia, Arthrorhaphis, Buelliella, Capronia, Carbonea, Cecidonia, Cercidospora, Chaenothecopsis, Clypeococcum, Cyphelium, Dactylospora, Didymellopsis, Endococcus, Epibryon, Epilichen, Karschia, Lecidea, Lichenochora, Lichenopeltella, Lichenostigma, Merismatium, Microcalicium, Muellerella, Nectriopsis, Nesolechia, Obryzum, Opegrapha, Phaeopyxis, Phaeospora, Plectocarpon, Polycoccum, Pronectria, Roselliniella, Roselliniopsis, Sagediopsis, Sarcopyrenia, Scutula, Sphaerellothecium, Sphinctrina, Spirographa, Stigmidium, Thelocarpon, Unguiculariopsis, Vezdaea, Weddellomyces, Zwackhiomyces*;

Basidiomycetes: *Athelia, Tremella*;

Coelomycetes: *Cornutispora, Epicladonia, Karsteniomyces, Keissleriomyces, Lichenoconium, Lichenodiplis, Phaeosporobolus, Phoma, Vouauxiella, Vouauxiomyces*;

Hyphomycetes: *Arborillus, Bispora, Hobsonia, Illosporium, Marchandiomyces, Refractohilum, Reichlingia, Sclerococcum, Taeniolella, Trimmatostroma, Xanthoriicola;*

Myxomycetes: *Licea*.

Many genera treated in this checklist are in need of a critical taxonomic revision in order to specify their more homogenous, natural delimitation to specify monophyletic units, mutual relationships among related genera to create a natural classification. Many taxa of specific and some of subspecific level that are included in such genera are apparently heterogeneous and need a critical study reflecting the coevolutionary relation of host and its fungal inhabitant. Comments given to such taxa in this study stress the necessity for realization of such critical revisions.

Historical review

Between 1850 and 1930 many taxa of lichenicolous fungi were described from Europe. Thereafter little was published until the 1960's (Hawksworth 1982b). A similar pattern can be discerned in the Czech literature.

The first report of lichenicolous fungus from the Czech Republic is that of Opiz (1823) on the basis of a collection of *Illosporium carneum* FR. [as *I. roseum* MART.]. on *Peltigera canina.* The following reports of lichenicolous fungi in the nineteenth century come from Opiz (1824a, 1824b, 1825), Mann (1825), Flotow 1839, 1850; Opiz and Ortman 1840; Körber 1855, 1865; Opiz 1852, 1856, 1857; Veselsky 1858; Rabenhorst 1870; Stein 1873, 1879; Novák 1888, 1893 and Schröter 1893-1908. Several additional specimens of unpublished records from the 1890's were found in PRM herbarium. These were collected by lichenologsists E. Bayer and P. Hora and after their revision are reported herein.

Lichenicolous fungi found in literature reports and the revision of specimens collected by the end of nineteenth century are represented by the following 27 species altogether: *Abrothallus caerulrdcens* KOTTE, *A. cetrariae* KOTTE, *A. prodiens* (HARM.) DIEDERICH et HAFELLNER, *Arthonia varians* (DAVIES) NYL., *"Arthopyrenia" lomnitzensis* STEIN, *Arthrorhaphis grisea* TH. FR., *Chaenothecopsis pusilla* (ACH.) A. F. W. SCHMIDT, *C. pusiola* (ACH.) VAIN., *Cyphelium sessile* (PERS.) TREVIS., *Dactylospora lobariella* (NYL.) HAFELLNER, *D. saxatilis* (SCHAER.) HAFELLNER, *Endococcus propinquus* s. 1., *Epibryon parvipunctum* (STEIN) DIEDERICH, *Epilichen scabrosus* (ACH.) CLEM., *Karschia talcophila* (ACH.) KÖRB., *Microcalicium arenarium* (HAMPE ex A. MASSAL.) TIBELL, *M. disseminatum* (ACH.) VAIN., *Muellerella pygmaea* (KÖRB.) D. HAWKSW., *Obryzum corniculatum* WALLR., *Opegrapha rupest-*

ris PERS., *Phaeospora rimosicola* (LEIGHT. ex MUDD) HEPP ex STEIN, *Plectocarpon lichenum* (SOMMERF.) D. HAWKSW., *Sagediopsis aquatica* (STEIN) TRIEBEL, *Sphinctrina anglica* NYL., *S. tubaeformis* A. MASSAL., *S. turbinata* (PERS.: FR.) DE NOT. and *Stigmidium congestum* (KÖRB.) TRIEBEL.

Körber, Stein and Novák paid great attention to the search of lichenicolous fungi and they also described several new species, among them two lichenicolous fungi from the Czech Republic. Stein described *Sagedia parvipuncta* STEIN [now known as *Epibryon parvipunctum* (STEIN) DIEDERICH] and *Gongylia aquatica* STEIN [now known as *Sagediopsis aquatica* (STEIN) TRIEBEL].

Although several scientists of this period (Novák, Veselsky, Opiz) lived in the territory that belongs to the Czech Republic today, most of the records are reported by foreign explorers. Since locality information was frequently imprecise, uncertainty of records exists, particularly where it concerns those along the northern Czech border.

From the beginning of the twentieth century, up to the 1960's, lichenicolous fungi are reported, mostly by local lichenologists or mycologists as individual records in their contributions to the lichen or fungal floras (Anders 1904, 1922, 1924a, 1924b, 1925, 1928, 1936; Bachmann 1927; Hilitzer 1926, 1929a, 1929b; Hruby 1928; Kalenský 1906; Kovář 1906, 1907, 1909; Kuťák 1910, 1911, 1923a, 1923b, 1927, 1952; Maloch 1913; Nádvorník 1932, 1934, 1936, 1940, 1942, 1951; Paul 1909; Picbauer 1907, 1942; Podzimek 1945; Servít 1910, 1911, 1925, 1926, 1930, 1954, 1959; Servít and Černohorský 1935; Servít and Klement 1933; Servít and Nádvorník 1932; Suza 1920-1921, 1921, 1922, 1923, 1924, 1925, 1929, 1933a, 1933b, 1933c, 1940, 1944, 1947; Velenovský 1920, 1920 - 1922, 1934, 1947; Zeiske 1902). Most of these reports relate to non-lichenized members of *Caliciaceae* and to the species now known as *Dactylospora saxatilis, Epilichen scabrosus* and *Karschia talcophila*, which have all been traditionally published among lichens. Nádvorník had a special interest in the taxonomy of *Caliciaceae*. Some records of lichenicolous fungi of the above cited scientists are listed by Migula 1912-1913, 1925-1927, 1927-1931; Vouaux 1913 and Schade 1917, 1955; or revised and published in short contributions or monographs by Bachmann 1927; Keissler 1923, 1925, 1930, 1933, 1937-1938; Magnusson 1936; Redinger 1938 and Zschacke 1933-1934. The description of two species *Verrucaria podzimekii* SERVÍT [now known as *Roselliniella microthelia* (WALLR.) NIK. HOFM. et HAFELLNER ined.] and *Stagonospora sandstedeana* KEISSL. [now known as *Keissleriomyces sandstedeanus* (KEISSL.) D. HAWKSW.] come from this period.

Special interest to lichenicolous fungi of the Czech and Slovak Republic (former Czechoslovakia) was paid by Vězda only. He published his results in three contributions (Vězda 1963, 1969a and 1970). The author has expanded on his investigations through several contributions (Horáková 1994, 1998; Kocourková-Horáková 1998a, 1998b; Kocourková 1999, Kocourková and Berger 1999). During this period *Polycoccum galligenum* VĚZDA [now known as *Polycoccum pulvinatum* (EITNER) R. SANT.], *Arthonia pragensis* HORÁKOVÁ and *Polycoccum minutulum* KOCOURKOVÁ et F. BERGER were described and several new records in the Czech Republic were made.

Material and methods

This study includes all species found by examination of available literature, specimens from the author's own field collections and specimens kindly given to the author by other scientists.

Specimens examined were from the institutional herbaria BRA, GZU, M, PRM, STU and from the private herbaria of Mgr. Š. Bayerová, Mgr. Z. Palice, and Dr. A. Vězda (all from The Botanical Institute of the Academy of Sciences of the Czech Republic, Průhonice) and Mgr. B. Gruna (Faculty of Science of the Masaryk University in Brno). The author's collections are deposited in the herbarium of the Mycological Department of the National Museum in Prague (PRM).

The generic name with reference to the original diagnosis and with comments is quoted before the listed species. The species name and synonyms used in the text are given with reference to the original diagnosis as well. Among the many synonyms preference is given to those used in the cited publications.

Anamorphic and corresponding teleomorphic state of a lichenicolous fungus are treated separately.

In the abbreviation of authors' names we follow the style of Brummitt and Powell (1992), and in the nomenclature that of Santesson (1993), except for the more recently described taxa.

In all references to world distribution only the page of the locality record of the species is quoted. Distribution data are not to be considered as complete or based on critical revision of specimens, but may help in the study of lichenicolous fungi by colleagues interested in this subject. They are mainly based on the more recent reports. Several reports might be based on the only record, generally when used from a comprehensive checklist. When the quotations refer to taxonomic papers in paragraph "Sel. lit.", the page extent is given to the species. In paragraphs "Specimens examined" and "Specimens not seen", coordinate squares (MTB grids) are provided for all precisely given localities from the Czech Republic.

If not given otherwise, the specimens have been identified by the author of this paper. If the specimen is a mixed collection of two or more species, it is quoted as "specimen of" (name of main species).

Samples were studied with routine mycological techniques. The specimens were sectioned by hand. Macroscopic features were examined with a MST 131 stereomicroscope (up to 48x). Microscopic characters were studied in squash preparations and hand cut sections in water, lactophenol Cotton Blue, 10 % KOH, Lugol's iodine solution under an Olympus BX-50 microscope (up to 1000x) fitted with a Nomarski differential interference contrast. Microphotographs were taken with an Olympus PM 10 camera and a Fuji 200 ASA film on an Olympus BX-50 microscope.

Explanation of abbreviations:
ap. = apothecia
BR = Biosphere Reserve
CR = Czech Republic
J. H. = J. Horáková (former name of the author)
J. K. = J. Kocourková
LPA = Landscape Protected Area
MTB = The four-digit numbers preceding the dates indicate coordinate squares of 10 by 6 minutes (MTB grid) of the listed localities.
NP = national park
NNR = national nature reserve
NR = nature reserve
P. K. = P. Kocourek
pod. = podetia
ref. = reference

Sel. lit. = selected literature
th. = thallus
w. coll. = without indication of collector
w. date = without indication of date
w. host = without indication of host
(?) = herbarium location unknown

Results

1. Well documented taxa

Abrothallus DE NOT.

Micromycetes Ital. novi vel minus cogniti, Preprint from Mem. Reale Acad. Sci. Torino, ser. 2: 1 (1845)

The genus is in need of a critical revision. Until such revision is carried out, it is difficult to provide host spectrum for most of the species. According to Triebel et al. (1991: 264), Hafellner (pers. com.) and the author's own observations it seems that more than one species may infect *Melanelia olivacea, M. fuliginosa* and *Xanthoparmelia conspersa* and probably also species of *Parmelia* s. str.

Abrothallus bertianus DE NOT.

Micromycetes Ital. novi vel minus cogniti, Preprint from Mem. Reale Acad. Sci. Torino, ser. 2: 1 (1845)

Ref. CR: None.

Sel. lit.: Santesson (1960: 513-514), Bellemère et al. (1986: 47-85, figs 1-3, Pl. I-XIII).

Host lichen in CR: *Melanelia fuliginosa.*

Other known hosts: *Melanelia exasperatula, M. disjuncta, M. glabra, M. olivacea, M. sorediata.*

The previous reports of this fungus collected on *Melanelia exasperata* (Diederich 1989: 29) perhaps belong to a different species of *Abrothallus* (Hafellner and Türk 1995: 600, and Hafellner, pers. com.). However, Santesson (1960: 513-514) studied the type material of *A. bertianus* DE NOT. (on *Melanelia fuliginosa*) in comparison with a fungus collected by him on *M. exasperata* in Spain. According to him both fungi were identical, reactions of their vegetative hyphae in tissue of both host thalli were I+ blue. None of these fungi formed cecidia or deformations of host lichen thallus as it is typical for *Abrothallus parmeliarum* s. l. which may also occur on some members of *Melanelia*, including the Czech host *Melanelia fuliginosa.*

Observation: In the specimen examined none gall-like deformations were seen. The ascoma epithecium was dark brown, the hypothecium brown, the hymenium blue, the spores 2-celled with rough surface, of 13.5-15.5 x 5-6 µm, yellowish-brown and the reaction of *Abrothallus*-hyphae in the host thallus below the ascomata was I+ blue.

Distribution: Worldwide distributed species in both hemispheres, but probably not common.

EUROPE: Austria (Bellemère et al. 1986: 48, Türk and Wittmann 1987: 46, Wittmann and Türk 1987: 389, Mayrhofer et al. 1989: 214, Hofmann et al. 1993: 843, Obermayer 1993: 142, Türk and Poelt 1993: 1, Wittmann and Türk 1994: 189, Hofmann et al. 1995: 229), British Isles (Hawksworth and Minter 1980: 567, Hawksworth et al. 1980: 6, Hawksworth 1983: 20), Estonia (Jüriado et al. 1999: 7), Finland (Vitikainen et al. 1997: 6), France (Bricaud et al. 1992: 82), Germany (Wirth 1994: 4), Luxembourg (Diederich 1989: 30, Diederich et al. 1991: 4), Poland (Alstrup and Olech 1996: 750), Slovenia (Grube et al. 1995: 194, Mayrhofer et al. 1996: 124, Grube et al. 1998: 185, 187), Spain (Santesson 1960: 513), Sweden (Santesson 1994b: 11, Santesson and Tønsberg 1994: 299); N. AFRICA: Morocco (Maire and Werner 1938: 37, as *A. parmeliarum*); N. AMERICA: (Esslinger and Egan 1995: 468), Canada: British Columbia (Goward et al. 1996: 439), U.S.A: Arizona (Triebel et al. 1991: 264) and S. AMERICA: Peru (Triebel et al. 1991: 264).

With regard to the fact that Maire and Werner (1938: 37) considered the fungus to be a parasymbiont, then it should belong to this species.

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Novohradské hory Mts., Nové Hrady, Hojná voda nature reserve, on *Melanelia fuliginosa*, 870-880 m, MTB 7254; 2.V.1997, coll. I. Vacínová, det. J. K. (hb. Palice).

Abrothallus caerulescens KOTTE

Centralbl. Bakter. Paras. 24: 86 (1909)
Pl. 1, fig. 4

Ref. CR: Kocourková (1999: 183); as *Abrothallus parmeliarum*: Velenovský (1934: 85), Novák (1888: 45, 1893: 46); as *Abrothallus bertianus*: Vězda (1977: 7).

Exs. CR: Vězda: Lich. sel. exs. 1500, as *Abrothallus bertianus.*

Host lichens in CR: *Xanthoparmelia conspersa, X. somloënsis.*

Known hosts: *Xanthoparmelia conspersa, X. somloënsis* and probably also other *Xanthoparmelia* spp.

Notes: The species does not cause any serious damage to host thalli. Slightly bleached thalli may be observed.

This common species has usually been reported under the name *Abrothallus bertianus*. However, as it has been treated above, *A. bertianus* is a fungus restricted to *Melanelia* species only. *Abrothallus caerulescens* has been also reported under the name *Abrothallus parmeliarum*, however, according to Hafellner (1998: 164), the latter fungus occurs on *Parmelia* s. str. only. So far reports of *Abrothallus parmeliarum* which causes deformation on thalli of *Xanthoparmelia* species, belong probably to a different, closely related species.

Nevertheless, there are some findings of *Abrothallus* on *Xanthoparmelia* spp. where the host thallus is not deformed, however, it differs from *A. caerulescens* by the presence of hyphae below ascomata which do not show the typical blue reaction in Lugol's iodine solution. According to Hafellner (pers. com.), these findings perhaps may belong to a fungus close to *A. parmeliarum* (see also below under *Abrothallus* sp.).

Mixed infections have been observed with *Lichenoconium usneae* (ANZI) D. HAWKSW., *Lichenostigma cosmopolites* HAFELLNER et CALATAYUD, *Stigmidium xanthoparmelia-*

rum HAFELLNER and *Weddellomyces xanthoparmeliae* CALATAYUD et NAV.- ROS.

For pycnidial state see under *Vouauxiomyces* sp. (p. 133)

Considering the number of below listed specimens the species is very common, but unfortunately there are only rare and very old records in literature. Since two species of *Abrothallus* probably occur on *Xanthoparmelia* hosts which do not cause any serious damage to their hosts, the reaction in I(Lugol) should be tested in the specimens of following reports, whether they really belong to *A. caerulescens*.

Distribution: EUROPE: Austria (Wittmann et al. 1989: 454, Wittmann and Türk 1994: 189, Obermayer 1993: 142, all as *Abrothallus parmeliarum*; Hafellner and Mauer 1994: 114), France (Bricaud et al. 1992: 82) and Sweden (Santesson 1986: 10, as *A. bertianus*).

Ecology: The species has been usually found on sunny or partly shaded sites on lonely acid boulders in meadows, on stones and small outcrops along paths in thin deciduous forests.

It is very common in lowlands in the Czech Republic.

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Rokycany, BR Křivoklátsko, near Skryje, on a slope of Strážov hill, on a stony scree, on rhyolite, on *Xanthoparmelia conspersa*, ca. 460 m, MTB 6048; 28.VI.1997, coll. J. K. and P. K. (PRM 891182, specimen of *Lichenoconium usneae*, together with *Lichenostigma cosmopolites*).

Central Bohemia, Distr. Rakovník, Bukov, on a slope of Liščí skály hill, on *X. somloënsis*, 420 m, MTB 5847; 15.XII.1996, coll. J. K. and P. K. (PRM 890781, as *A. bertianus*). - Ibid.: 22.II.1997, coll. J. K. and P. K. (PRM 892546, together with *Vouauxiomyces* sp.). - Distr. Rakovník, BR Křivoklátsko, near Skryje, Skryjská jezírka nature reserve, on a steep slope of the rock on right bank of the Zbirožský potok stream, on dacite, on *X. somloënsis*, 475 m, MTB 6048; 16.VII.1996, coll. J. H. (PRM 889653). - Distr. Rakovník, BR Křivoklátsko, near Týřovice, NNR Týřov, on a slope of Týřovické skály hill, on shale, on *X. somloënsis*, 395 m, MTB 6048; 17.VII.1996, coll. J. H. (PRM 890783). - Distr. Rakovník, BR Křivoklátsko, 1 km NE of Nezabudice, Nezabudické skály rocks, on rhyolite, on *X. conspersa*, 270 m, MTB 5949; 13.IV.1996, coll. J. H. and P. K., (PRM 758285). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka River, on rhyolite, on *X. conspersa*, 250 m, MTB 5949; 29.VII.1997, coll. and det. J. K. and P. K. (PRM 891172, specimen of *Stigmidium fuscatae*). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná stream, on rhyolite rocks, on *X. conspersa*, 300 m, MTB 5949; 9.XI.1997, coll. J. K. (PRM 892468). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W exposed slope, in a mixed forest, on rhyolite, on *X. conspersa*, 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K. (PRM 892449, 892479). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite outcrop, on *X. conspersa*, 360 m, MTB 5949; 27.VI.1998, coll. J. K. and P. K. (PRM 758284). - Distr. Praha-západ, Mnichovice, below the village of Zbuzany, on *X. somloënsis*, MTB 5951; 4.II.1928, coll. J. Velenovský, det. J. K. (PRM 150300, as *A. parmeliarum*). - The city of Praha, near Pitkovice, in the valley of the brook Pitkovický potok, Pitkovická stráň nature reserve, on shale, on *X. somloënsis*, 280 m, MTB 5953; 11.IX.1998, coll. J. K. (PRM 892560, specimen of *Weddellomyces xanthoparmeliae*, together with *Lichenostigma cosmopolites*). - Distr. Praha-východ, near Týnec n. Sázavou, Prosečnice, near quarry, on diorite boulder, 330 m, MTB 6153; 25.III.1996, coll. J. H. (PRM 892478).

Eastern Bohemia, Distr. Havlíčkův Brod, Lipnice n. Sázavou, below the Lipnice castle, on a granite rock, on *X. conspersa*, 515 m, MTB 6358; 21.V.1996, coll. J. H. (PRM 891191). - Distr. Havlíčkův Brod, in the Chotěboř town, on bank of the "Chotěbořský rybník" pond, MTB 6260; w. date, coll. J. Novák (PRM 693254, as *A. parmeliarum*).

Western Moravia, Distr. Žďár n. Sázavou, near Velká Bíteš ca. 5 km of Tasov, on a granite boulder, on *X. somloënsis*, ca. 450 m, MTB 6762; 14.V.1995, coll. J. H. (PRM 891380).

Central Moravia, Veverská Bítýška, in the valley of the Svratka River, on *X. somloënsis*, MTB 6764; XI.1963, coll. A. Vězda (hb. Vězda). - Distr. Brno, Veverská Bítýška, in the valley of the Svratka River, at the Veveří castle, on siliceous rock, on *X. somloënsis*, 280 m, MTB 6765; 10.II.1974, coll. A. Vězda (PRM 809428 - Vězda: Lich. sel. exs. 1500, BRA 146, both as *A. bertianus*, BRA together with *Lichenoconium* usneae.

Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov reservoir, on the exposed S slope near the "Chvalatická zátoka", on quartzite boulders, on *X. conspersa*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 892653). - Ibid.: on *X. conspersa* (PRM 758527, specimen of *Cornutispora* sp., together with *Lichenostigma cosmopolites*, *Sclerococcum* sp. and *Weddellomyces xanthoparmeliae*). - Distr. Znojmo, the Podyjí NP, Vranov n. Dyjí, ca. 4 km SE of the village, on the top of the ridge above the Dyje River, on *Xanthoparmelia conspersa*, 490 m, MTB 7160; 4.IX.1998, coll. J. K. (PRM 758542). - Ibid.: (PRM 758616, specimen of *Weddellomyces xanthoparmeliae*, together with *Lichenostigma cosmopolites* and *Lichenoconium usneae*).

Abrothallus cetrariae KOTTE

Centralbl. Bakter. Paras. 24: 82 (1909)

Ref. CR: Stein (1873: 169, 1879: 211, both as *Abrothallus smithii* TUL).

Sel. lit.: Etayo (1996a: 94), Kalb and Hafellner (1992: 47).

Host lichen in CR: *Platismatia glauca*.

Known host: *Platismatia glauca* only.

Note: There are two additional reports of *Abrothallus cetrariae* from the Czech Republic, however, none are referred to this fungus. The Veselsky's (1858: 257) report (as *Abrothallus smithii*) is based on a fungus referred now to *A. prodiens* (see below) because of its host *Hypogymnia physodes* and the Velenovský's report (Velenovský 1934: 85) is really based on an erroneous identification of a coelomycetous fungus on *Cetraria islandica*, despite the statement of the latter author that the features of this fungus fit well the original diagnosis.

For pycnidial state see under *Vouauxiomyces santessonii* D. HAWKSW. (p. 133).

Distribution: EUROPE: Austria (Türk and Poelt 1993: 1), Sweden (Thor 1992: 20); N. AFRICA: Portugal: Madeira (Hafellner 1995c: 5), Spain: Canary Islands (Etayo 1996a: 94, Hafellner 1999a: 2), and N. AMERICA: Canada: British Columbia (Goward et al. 1996: 439, Alstrup and Cole 1998: 222).

Specimen (not seen): CZECH REPUBLIC: Northern Bohemia, Krkonoše Mts., in the valley Labský důl ("Elbgrunde") above Sv. Petr, on *Platismatia glauca* (as *Cetraria fallax*), MTB 5260; coll. B. Stein (?WRSL).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Mt. Poledník, at a forest track to the Prášilské jezero lake, on spruce branches, on *Platismatia glauca*, MTB 6946; 8.IX.1904, coll. E. Bayer (PRM 693257, as *A. parmeliarum*).

Western Moravia, Distr. Žďár nad Sázavou, "Brožova skála" rock, on *Platismatia glauca*, MTB 6362; w. date, coll. E. Senft (PRM 759627).

Abrothallus prodiens (HARM.) DIEDERICH et HAFELLNER

Mycotaxon 37: 300 (1990)

Pl. 1, figs 1-3

Ref. CR: Veselsky (1858: 257, as *Abrothallus smithii*).

Exs. CR: Arnold: Krypt. exs. 957, as *Abrothallus parmeliarum* (SOMMERF.) ARNOLD.

Sel. lit.: Diederich (1990: 300-302, fig. 2).

Host lichen in CR: *Hypogymnia physodes.*

Other known hosts: *Cavernularia lophyrea.*

Distribution: According to Hafellner (1995b: 134) the species is reported from EUROPE: Austria, British Isles, Germany, France, Luxembourg, Sweden; ASIA: Russia (Siberia); N. AFRICA: Spain: Canary Islands and N. AMERICA: U.S.A.

Other known reports: EUROPE: Austria (Obermayer 1993: 142), Germany (John 1990: 73), Finland (Vitikainen et al. 1997: 6), Luxembourg (Diederich 1986: 6, as *A. parmeliarum*, 1989: 31, 1990: 302).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Kolín, on *Hypogymnia physodes*, MTB 5957; 1853, coll. B. Veselsky (PRM 693259, as *Abrothallus smithii*).

Southern Bohemia, Kaplice near České Budějovice ("Kaplitz"), on thallus of *Hypogymnia physodes*, MTB 7252; VIII.?date, coll. Müller (Arnold: Krypt. exs. 957, PRM 5988, as *Abrothallus parmeliarum*).

Abrothallus sp.

Ref. CR: None.

Host lichen in CR: *Xanthoparmelia conspersa.*

Observation: Neither gall-forming deformations nor a destruction of the thallus could be seen in this collection. By its intense K+yellow-green reaction in all parts of hymenium, it closely resembles *A. caerulescens*, however, it differs in lack of reaction of its vegetative hyphae present in the host thallus tissue in Lugol's iodine solution.

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Strážný, on the SE slope of Vyhlídka hill, on *Xanthoparmelia conspersa*, 870 m, MTB 7048; 7.IX.1996, coll. J. H. (PRM 758334).

Arborillus MUNT.-CVET. et GÓMEZ-BOLEA
Mycotaxon 68: 152 (1998)

This genus has been recently described by Muntañola-Cvetković and Gómez-Bolea (1998) for a below treated synnematous hyphomycetous fungus *Arborillus llimonae.*

Arborillus llimonae MUNT.-CVET. et GÓMEZ-BOLEA
Mycotaxon 68: 152 (1998)
Pl. 1, figs 5, 6

Ref. CR: None.

Sel. lit.: Muntañola-Cvetković and Gómez-Bolea (1998, figs 1-7).

Host lichen in CR: *Diploschistes scruposus.*

Other known host: *Diploschistes diacapsis.*

Distribution: Spain (Muntañola-Cvetković and Gómez-Bolea 1998) and Czech Republic only.

Observation: *Arborillus llimonae* has been recently described by Muntañola-Cvetković and Gómez-Bolea (1998) as a new synnematous hyphomycetous species with blastic-percurrent conidium ontogeny from a single collection on *Diploschistes diacapsis,* growing on a gypsaceous soil in central Catalonia in Spain. As the fungus strongly resembles a member of Caliciales and *Sphinctrina leucopoda* NYL. occurred in close vicinity on the same site causing similar symptoms of infection, the author took it at first for an old *S. leucopoda* strongly affected by a hyphomycetous fungus. During her visit in Graz in Austria in autumn 1998 this fungus was recognized by J. Hafellner as probably belonging to *Arborillus llimonae.* The following study confirmed this opinion. By revision of the author's unidentified older specimens of lichenicolous fungi she found an additional specimen collected in Praha.

The fungus on the host thalli from the BR Křivoklátsko forms usually necrotic rusty-brown circles up to 5 cm large. However, also several large, completely brown spots on thalli of *Diploschistes scruposus* up to 10 cm in average were observed during the last visit in the locality in January of 2000, where the species was present in great quantity. The synnemata arising inside the circles from the severely damaged tissue of the thallus or in brown necrotic spots grow up especially from the margin of apothecia and apothecial discs. The mature synnemata are grey-brown to brown, dispersed, simple or occasionally poorly branched, with heads up to 0.45 mm wide, covered by an aeruginous mass of dry conidia. Neither the rusty brown circles nor the brown spots were observed by the authors of the type description on *Diploschistes diacapsis* in the Spanish collection and also these are not present in the specimen from Praha. The thalli in the Spanish collection were "apparently undamaged but rather poor in apothecia" (Muntañola-Cvetković and Gómez-Bolea 1998: 154) in contrast to the damaged thalli in all our collections, but with usually normally formed apothecia. Also some following characters and measurements in our collections are not completely agreeing with the type description as the occasionally poorly branched and a little bit larger synnemata of 0.6-1.5 x 0.07-0.15 mm in diam. and the somewhat wider conidia of 3-4 x 2.5-3.5 µm in diam., however, the differences in measurements appear to be within the variability of the species. Explanation of presence or absence of necrotic lines around the area of infection and occurrence of large completely brown spots on thalli depends on a sufficient number of future collections.

The Moravian sterile collection possesses similar infection symptoms, the well developed brown necrotic circles. Regarding the infection character, we suppose the collection also belongs to *A. llimonae.* Unfortunately, despite the repeated visit of that site two years later (in 1998), we failed to find either synnemata or necrotic infection on the thalli.

A. llimonae was found to grow in a mixed infection together with *Lichenostigma rugosa* THOR and *Lichenoconium usneae* (ANZI) D. HAWKSW. Ascomata of *L. rugosa* were dispersed on the thallus, margins and hymenium of apothecia of the host, while the conidiomata of *L. usneae* were observed in the thalline margin of the host apothecia only.

Two other lichenicolous fungi *Sphinctrina leucopoda* NYL. and *Marchandiomyces corallinus* (ROBERGE) DIEDERICH et D. HAWKSW. also occurred on *Diploschistes scruposus* in the locality in BR Křivoklátsko, but these have never been seen in a mixed infection with *Arborillus llimonae.*

Sphinctrina leucopoda forms the infection spots similar to those caused by *Arborillus llimonae,* usually with marginal rusty-brown necrotic line around the spots. However, these spots are always smaller (up to 2 cm), their necrotic central parts disintegrating in advanced stages of the infection and the ascomata of *S. leucopoda* grow much more close together in contrast to the synnemata of *Arborillus llimonae* which are more dispersed. For more comments on *S. leucopoda* see below under this species.

The infection caused by *Marchandiomyces corallinus* may also resemble the infection caused by *A. llimonae*, but only in its old stage, when brown necrotic lines remain after the infection. However, in these lines, the undestroyed, brownish sclerotia of *Marchandiomyces* are still visible.

All the collections in the Czech Republic were made on rock outcrops in the foggy valleys of rivers.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, the valley of the Berounka River, Stříbrný luh nature reserve, on the W slope, in a mixed forest, on shale rocks, on *Diploschistes scruposus,* 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K., det. J. Hafellner (PRM 892661, 758493, together with *Lichenoconium usneae*). - Ibid.: 13.VII.1998 (PRM 758628). - The city of Praha, the valley of the Vltava River, Malá Chuchle, on outcrops of diabasic rocks at the Bránický bridge, on *D. scruposus*, 220 m, MTB 5952; 3.IV.1988, coll J. H. (PRM 886575).

Western Moravia, Distr. Jihlava, 3 km W of Jihlava, above the Jihlava River in the Zaječí skok nature reserve, on gneiss, on *D. scruposus*, 510 m, MTB 6559; 15.X.1996, coll. J. H. (PRM 892654).

Arthonia ACH.

Neues Journ. Bot.1: 3 (1806)

This very species-rich genus comprises both the lichenized and lichenicolous taxa. Many lichenicolous species are insufficiently known and the genus is in need of a thorough revision. The genus belongs to the *Arthoniaceae* family.

Arthonia almquistii VAIN.

Meddeland. Soc. Fauna
Flora Fenn. 10: 156 (1883)

Ref. CR: None.

Sel. lit.: Triebel (1989: 55-57, fig. 6a), Rambold et al. (1990: 235-236).

Host lichens in CR: *Porpidia crustulata, P. tuberculosa.*

Other known hosts: *Amygdalaria panaeola, A. pelobotryon, Farnoldia micropsis, Koerberiella wimmeriana, Lecidea polaris, Porpidia macrocarpa, P. soredizodes, Trapelia coarctata.*

Observation: *Arthonia almquistii* does not cause any visible damage to its hosts. Small, black, rounded ascomata sit in groups on the host thalli. Ascomata in the Czech specimen are crowded and very small, of 0.1-0.13 mm diam. only. Also the size of asci 25-28 x 17-20 µm and of ascospores (8-)9-11 x 4-5 µm in diam. is smaller than that given by Triebel (1989: 55) for the asci of 28-38 x 17-19 µm in diam. and for the ascospores of 10.5-15 x 4-5.5 µm. The measured dimensions in the compared specimen correspond well with those in the Triebel description.

Distribution: EUROPE: Austria (Rambold et al. 1990: 236, Hafellner and Türk 1995: 601), British Isles (Hitch 1998: 42), Germany (Triebel 1989: 56), Norway (Santesson 1993: 15), Russia (Rambold et al. 1990: 236), Spain (Triebel 1989: 56), Sweden (Triebel 1989: 56, Santesson 1993: 15) and N. AMERICA: Canada (Printzen 1995: 207).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky, in the valley of the Klucná stream, on the SW slope of scree, on rhyolite boulder, on *Porpidia crustulata* (th.) and *P. tuberculosa* (th.), 280 m, MTB 5949; 8.XI.1997, coll. J. K. and P. K. (PRM 892477, also present: *Polycoccum minutulum* on *Trapelia coarctata*).

Specimen compared: AUSTRIA: Steiermark, Niedere Tauern, Wölzer Tauern, Hohenwart-Massiv W of Pusterwald, by path to Pölseckjoch, E below the top, NE exposed, "middle" marble steep rock; ca. 2200 m, MTB 8651/3; on often superficially decalcified, slate fine-crystalinic marble rock; on *Porpidia macrocarpa*, 18.VIII.1993, coll. A. Wilfling, J. Hafellner and M. Möslinger, det. J. Hafellner (hb. GZU, A. Wilfling 1639).

Arthonia apotheciorum subsp. *caerulescens* ALMQ.

Kungl. Svenska Vetensk. Akad. Handl. 17: 59 (1879)

Syn.: *Conida caerulescens* (ALMQ.) ZOPF, Hedwigia 35: 335 (1896)

Ref. CR: None.

Host lichen in CR: *Lecanora varia.*

Known host: *Lecanora varia* only.

Distribution: Only EUROPE: Sweden [Vouaux 1914: 151, as *Conida caerulescens*; Santesson 1993: 15, as *A. clemens* (TUL.) TH. FR.] and Austria.

Distribution data of this recently resurected old Almquist taxon by Grube and Matzer (1996: 13) are difficult to provide. So far occasional reports on *Lecanora varia* which the author found by excerption of literature (except for the type locality) are treated under the name *A. clemens,* a parasitic species which is confined to the host *Rhizoplaca chrysoleuca* only (Hafellner 1995b: 134, Santesson 1998: 2).

Specimen examined: CZECH REPUBLIC: Northern Bohemia, Distr. Děčín, Lužické hory Mts., on the W slope of Mt. Jedlová, on an old standing decorticated trunk of *Picea abies*, on *Lecanora varia* (ap.), 680 m, MTB 5153; 4.IV.1999, coll. J. K. and P. K. (PRM 758558).

Additional specimen examined: AUSTRIA: Tirol, Kühtai, in the Längental valley, on wood of *Pinus cembra*, on *Lecanora varia* (ap.), 1980 m, MTB 8732; 29.VIII.1996, coll. J. H. and R. Türk, det. J. K. (PRM 758578).

Arthonia epiphyscia NYL.

Flora 58: 361 (1875)

Ref. CR: None.

Host lichen in CR: *Physcia dimidiata.*

Other known hosts: *Physcia adscendens, P. albinea, P. caesia, P. dubia, P. phaea, P. semipinnata, P. stellaris, P. tibacia.*

Also reported on *Xanthoria parietina* (Vězda 1970: 221, Santesson 1960: 501, Giralt 1996: 365-366), however, according

to Grube and Matzer (1997: 10), *Arthonia epiphyscia* is probably confined to *Physcia* s. str. (see note).

Observation: *Arthonia epiphyscia* is a slightly pathogenic species causing local infection. Darker grey spots are visible on the host thallus in initial stage of infection. Ascomata erupt in small groups or in rows in the slightly swollen areas through the host thallus cortex, eventually sit on. Tissue of the host surrounding the ascomata becomes slightly necrotic. Ascomata are partly confluent, of 0.12-0.18 mm in diam., rounded, convex, black, with slightly granular surface of discs, slightly glossy. Parathecioid layer dark brown, cell structures inconspicuous. Epithecioid layer dark brown, of ends of interascal filaments with pigmented caps, up to 10 µm high. Ascigerous layer hyaline to olive-green, 30-40 µm high. Hypothecioid layer rusty brown, in upper part brown. Interascal filaments paraphysoidal, branched and anastomosing, with slightly swollen olive-green brown ends, firmly conglutinated. Asci ovoid to broadly ovoid, short stalked, 29-35 x 15-20 µm. Ascospores oblong ovoid to slipper-shaped, hyaline, smooth, without perispore, 11-13 x 4-5 µm, 1-septate, constricted at the septum. Conidiomata pycnidial, sitting on the side of ascomata, with bacilliform conidia 5 x 1 µm. Chemistry: Ascomatal gel I+ wine red, KI+ bluish. All parts K-.

Probably, the pycnidia have not been previously observed in this species.

Note: For a long time it was obvious that the species was heterogeneous (Santesson 1960: 501) and included at least one additional distinct species, which was confined to *Phaeophyscia*. That one was later described as *Arthonia phaeophysciae* GRUBE et MATZER (Grube and Matzer 1997: 10) (see, p. 67).

Now it seems that *Arthonia* occurring on *Xanthoria parietina* thallus, reported several times under the name of *A. epiphyscia* (Santesson 1960: 501, Giralt 1996: 365-366), is also different because of smaller spores (9-12 x 3.5-4.5 µm) and of its hypothecioid brownish layer only. *Arthonia molendoi* (FRAUENF.) R. SANT. which occurs also on *Xanthoria* species and has almost hyaline hypothecioid layer, should be proved if conspecific with this unsufficiently known taxon.

Arthonia destruens REHM, often cited on *Physcia* species and *Xanthoria parietina,* have been recently recognized to be restricted to *Physcia aipolia* and *P. stellaris* only and *Arthonia destruens* var. *nana* GRUBE et HAFELLNER was described as a new taxon from *Xanthoria fallax* (Grube et al. 1995: 35). Both *Arthonia destruens* and *Arthonia destruens* REHM var. *nana* are distinguished from *A. epiphyscia* by the presence of yellowish pigments K+ turning purplish violet, by an ascigerous layer of I+ deep blue and by larger spores, of 10.5-17 x 5-7 µm and 10.5-13 x 5-7 µm respectively, which become brown and verruculose when mature.

Distribution: Numerous reports on *Arthonia epiphyscia* are referred to *Arthonia phaeophysciae*. Hafellner (1995b: 136) summarized the references for both previously undistinguished fungi. The following references are provided here for the records on *Physcia* spp. only.

EUROPE: Austria (Türk and Wittmann 1987: 50, Hafellner et al. 1992: 105, Türk and Poelt 1993: 5, Wittmann and Türk 1994: 191, Hafellner and Türk 1995: 601, Hofmann et al. 1998: 157), British Isles (Purvis et al. 1992: 81, Hitch 1996b: 38), Finland (Nylander 1875: 361, Santesson 1960: 501, Vitikainen et al. 1997: 8), France: Corsica (Hafellner 1994a: 220), Norway (Hafellner 1993: 750, Santesson 1993: 16), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 150), Spain (Santesson 1960: 500, Calatayud et al. 1995: 368), Sweden (Santesson 1993: 16), Ukraine (Kondratyuk et al. 1998b: 20); ASIA: Russia: Chukotka (Zhurbenko and Santesson 1996: 150), Taymyr Peninsula (Zhurbenko 1996: 224); N. AFRICA: Spain: Canary Islands (Hafellner 1995b: 137, 1995c: 8); S. AFRICA: (Santesson 1960: 501); N. AMERICA: Greenland (Alstrup and Hawksworth 1990: 16); S. AMERICA: Argentina, Chile (Santesson 1960: 501, Wedin 1994: 307).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, Hudlice, near the village of Stará Ves, on the S slope of diabasic rocks, on *Physcia dimidiata*, 340 m, MTB 6049; 10.XI.1996, coll. J. H. and P. K. (PRM 890780).

Arthonia galactinaria LEIGHT.

Lich. Flora Gr. Brit., ed. 3: 426 (1879)

Ref. CR: None.

Host lichen in CR: *Lecanora dispersa* s. l.

Other known hosts: *Lecanora albescens, L. crenulata.*

Note: The possible name for this fungus is also *Arthonia vagans* ALMQ. var. *lecanorina* ALMQ., which was described one year later in 1880. Grube and Matzer (1997: 13) mentioned, that the only difference probably is (according to protologue of Leighton) in spores becoming brown when old in *Arthonia galactinaria*. Till further facts are known we will prefer using of the earlier name *A. galactinaria* even though spores in all below listed specimens are hyaline only.

Former collections on *Lecanora dispersa* were usually reported under the name *A. clemens.*

Ecology: *Arthonia galactinaria* infects apothecia of its host, where it embeds in the hymenium. The black rounded apothecia are flat to convex, sitting in groups of two or three in the hymenium. Under stronger infection the host apothecia become completely black and make it easy to detect this fungus in the field.

Distribution: EUROPE: Austria (Wittmann et al. 1989: 452, Hofmann et al. 1993: 843, Obermayer 1993: 142, all as *A. clemens*; Hafellner and Türk 1995: 602), British Isles (Hawksworth 1983: 21, Purvis et al. 1992: 79, both as *A. clemens*), Finland (Vitikainen et al. 1997: 8, as *A. clemens*), Italy (Nimis 1993: 75, as *A. clemens*), Italy: Marettimo (Nimis et al. 1994: 249, as *A. clemens*; Hafellner and Türk 1995: 602), France: Corsica (Hafellner 1994a: 220), Luxembourg (Sérusiaux et al. 1999: 16, as *A. vagans* var. *lecanorina*), Norway (Santesson 1993: 15, as *A. clemens*), Sweden (Thor 1993: 109, Santesson 1993: 15, both as *A. clemens*), Ukraine (Kondratyuk and Khodosovtsev 1997: 589, as *A. clemens*); N. AFRICA: Morocco (Maire and Werner 1938: 39, as *Conida clemens*) and N. AMERICA: (Triebel et al. 1991: 266, as *A. clemens*, Esslinger and Egan 1995: 471).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, in the village of Kněževes, on concrete wall of garden-fence, on *Lecanora dispersa*, 375 m, MTB 5847; 13.II.1999, coll. J. K. and P. K. (PRM 758302). - Distr. Rakovník, near Přílepy, the

Bělidlo mill, on top of concrete fence column, on *L. dispersa*, 340 m, MTB 5847; 21.I.1996, coll. J. H. (PRM 889657). - Distr. Rakovník, in the village of Přílepy, concrete post in a field, on *L. dispersa* s. l., 360 m, MTB 5847; 16.II.1997, coll. J. H. and P. K. (PRM 890779). - Distr. Rakovník, BR Křivoklátsko, Na Babě nature reserve, on top of a concrete post by path, on *Lecanora dispersa* s. l., 290 m, MTB 5949; 1.V.1998, coll. J. K. and P. K. (PRM 892470).

Eastern Bohemia, Orlické hory Mts., Distr. Rychnov nad Kněžnou, near the village of Podlesí near the Divoká Orlice River, on top of a concrete post by a road, on *L. dispersa*, 550 m, MTB 5765; 19.IV.1996, coll. J. H. (PRM 892177).

Southern Moravia, Distr. Blansko, Křtiny, in the valley of the Křtinský potok stream, on concrete pillar of a bridge, on *L. dispersa*, 400 m, MTB 6766; 2.III.1989, coll. J. H. and A. Vězda, det. A. Vězda (PRM 889658).

Arthonia phaeophysciae GRUBE et MATZER
Bibl. Lichenol. 68: 10 (1997)

Ref. CR: None.

Sel. lit.: Santesson (1960: 501), Grube and Matzer (1997: 10-11, fig. 1C).

Host lichens in CR: *Phaeophyscia orbicularis, P. nigricans.*

Other known hosts: *Phaeophyscia constipata, P. endophoenicea, P. sciastra.*

Notes: *Arthonia phaeophysciae* is an obligate parasite restricted to the *Phaeophyscia* species. From closely related *A. epiphyscia* it is distinguished by the apothecia flattened and semi-immersed up to maturity, hypothecium hyaline to pale brownish and spores constantly larger, of 12-14 x 4-6 µm [in our specimens up to (11-)12-16(-17) x 4.5-6 µm]. Grube and Matzer (1997: 10) found also a difference in epithecium, which is in *A. phaeophysciae* composed of more distinctly vertical and parallel elements.

All collections in the Czech Republic have been made on *Phaeophyscia* growing on man-made substrata (concrete, walls), but one on an antropogenic site, rocks below a castle.

Distribution: Considering the number of references to *A. phaeophysciae* and *A. epiphyscia*, the latter species seems to be more abundant. However, as we could observe, *A. phaeophysciae* is more common in the Czech Republic than *A. epiphyscia.*

Grube and Matzer (l.c.) examined several specimens of *Arthonia epiphyscia* on *Phaeophyscia*, previously reported from Austria (Obermayer 1993: 142, Hafellner and Mauer 1994: 115, Hafellner and Türk 1995: 601) and the British Isles (Hawksworth 1975b: 186) and an additional specimen from Germany, and found that all belong to *A. phaeophysciae*. Sérusiaux et al. (1999: 16) corrected also previous records from Luxembourg (Diederich 1986: 7, 1989: 38).

The species is probably widely distributed. So far, it was confirmed to occur in EUROPE: Austria, British Isles, Germany, Luxembourg and Czech Republic but the records of *A. epiphyscia* on *Phaeophyscia* from Spain (Santesson 1960: 501, Renobales 1996: 50) and the U.S.A.: Arizona (Triebel et al. 1991: 266) may belong to *A. phaeophysciae*, too.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, on *Phaeophyscia orbicularis*, 435 m, MTB 5947; 2.XI.1996, coll. J. H. (PRM 891209). - Ibid.: 26.I.1997 (PRM 892515, together with *Buelliella physciicola*). - Distr. Rakovník, the village of Senec, on top of a concrete post, on *P. nigricans*, 430 m, MTB 5948; 11.II.1998, coll. and det. P. K. (PRM 892475). - Distr. Rakovník, at SE margin of the Rakovník town, on a concrete wall, on *P. orbicularis*, 320 m, MTB 5948; 15.I.1997, coll. and det. P. K. (PRM 891164). - Distr. Rakovník, at the W margin of the village Chrášťany, on the wall of a railway viaduct over the road, on *P. orbicularis*, 370 m, MTB 5847; 21.II.1999, coll. J. K. and P. K. (PRM 758462).

Southern Bohemia, Distr. Strakonice, Jinín, in a park on a stone wall, on *P. orbicularis*, 440 m, MTB 6749; 9.VIII.1999, coll. J. K. and P. K. (PRM 760579). - Distr. Pelhřimov, 4 km SE of Humpolec, in the village of Krasoňov, on a concrete wall, on *P. orbicularis*, 575 m, MTB 6458; 22.VIII.1998, coll. J. K. and P. K. (PRM 892448, 892451).

Eastern Bohemia, Orlické hory Mts., Distr. Rychnov nad Kněžnou, in the valley of the Divoká Orlice River, near the village of Podlesí, on top of a concrete post by a road, on *P. nigricans*, 550 m, MTB 5765; 19.IV.1996, coll. J. H. and A. Wilfling, det. J. K. (PRM 892508).

Arthonia pragensis HORÁKOVÁ
Czech Mycol. 47: 139 (1994)

Ref. CR: Horáková (1994).

Host lichens in CR: *Caloplaca teicholyta* and an unidentified sterile crustose lichen.

Note: Considering the features in the ascomata (Horáková l.c.), *Arthonia pragensis* belongs to the *Arthonia radiata* group (Grube and Matzer 1997). However, Grube and Matzer (1997) suppose that most of the lichenicolous representatives of this group occur on lecanoralean host lichens, primarily on *Lecanora* and on genera of *Physciaceae* with foliose thalli.

Distribution: Czech Republic only.

Specimens examined: CZECH REPUBLIC: Central Bohemia, the city of Praha, between the villages of Velká Chuchle and Slivenec, Homolka nature reserve, on calcareous rocks, on *Caloplaca teicholyta* (th.), ca. 280 m, MTB 5952; 4.I.1994, coll. J. H. (PRM 758629). - The city of Praha, in the Dalejské údolí valley near the Arethusinová rokle quarry, on S slope of diabasic rocks, on a crustose sterile lichen, 310 m, MTB 5951; 17.I.1993, coll. J. H. (PRM 842917 - Holotypus).

Arthopyrenia A. MASSAL.
Ricerche auton. Lich. Crost.: 165 (1852)

Most of all *Arthopyrenia* species are slightly lichenized or saprophytic fungi growing on the bark of living deciduous trees. Many lichenicolous taxa with 2-celled hyaline spores were originally described in this genus, but now belong to various genera such as *Zwackhiomyces*, *Stigmidium* and some others.

"*Arthopyrenia*" *lomnitzensis* STEIN
Kryptog.-Fl. Schlesien 2(2): 350 (1879)

Ref. CR: Eitner (1895: 23), Zeiske (1902: 434), Lettau (1912: 101), Suza (1934: 1), Keissler (1937: 114).

Exs. CR: Suza: Lich. Bohemosl. exs. 242; Kavina - Hilitzer: Crypt. čechoslovenicae exs. 263.

Host lichen in CR: *Ionaspis odora.*

Other known hosts: *Hymenelia epulotica, Ionaspis lacustris.*

Observation: Immersed or semi-immersed ascomata are present on the hosts' thalli in very large quantities in all studied specimens. Despite this, the species does not cause any considerable damage to the hosts, only apothecia of the host are occasionally retarded in development or number. "*Arthopyrenia*" *lomnitzensis* is characterized by small, hyaline, smooth-walled spores, of 9-12 x 5-6 µm.

Notes: *"A." lomnitzensis* is clearly not identical with *Pharcidia lacustris* ZOPF (probably belonging to *Stigmidium* s. l.), which is characterized by much larger spores of 27-30 x 9-11 µm.

Ionaspis lacustris was also reported as a host by Alstrup and Olech (1996: 751) for *Stigmidium hygrophilum* (ARNOLD) R. SANT. However, a type host of this fungus, originally described in *Endococcus* and characterized by fusiform spores of 15-18 x 5-6 µm in diam., is *Rhizocarpon badioatrum*. Unfortunately, none characters except for significantly smaller spores than in "*Pharcidia*" *lacustris* were mentioned by these authors. Taxonomic position of "*A.*" *lomnitzensis* is not clarified yet and the species should be further studied. For other notes on *S. hygrophilum* see under *Endococcus fusiger* TH. FR. et ALMQ. (p. 82).

Distribution: *Arthopyrenia lomnitzensis* is a very rare species. It is known in Europe only where it is widely distributed. Probably, it has been overlooked so far. Up till now, it has been reported from the British Isles (Hawksworth 1983: 12, Clauzade and Roux 1985: 170, Purvis et al. 1992: 88), Poland (Stein 1879: 343, Sydow 1887: 293, Fałtynowicz 1993: 3), Sweden (Santesson 1993: 19) and the Czech Republic only.

In the Czech Republic it occurs in mountain areas along the northern border, on partly inundated boulders and rocks in rivers and brooks.

Specimens examined (all on *Ionaspis odora*): CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., in the valley of the Bílé Labe River, in the river, on an occasionally inundated granite rock, 950 m, MTB 5259; 1934, coll. and det. V. Kuťák (PRM 694657, Suza: Lich. Bohemosl. exs. 242). - Ibid.: VIII.1934, coll. and det. V. Kuťák (PRM 694656, 694660, Kavina - Hilitzer: Crypt. čechoslovenicae exs. 263). - Krkonoše Mts., below Mt. Sněžka, on stone in a brook, MTB 5260; 1913, coll. V. Kuťák (PRM 694650). - Krkonoše Mts., Špindlerův Mlýn, on brook stones, MTB 5259; 1923, coll. and det. V. Kuťák (PRM 479417). - Krkonoše Mts., in the Bílé Labe River, along the Webrova cesta path, MTB 5259; 1935, coll. and det. V. Kuťák (PRM 694658, 694659).

Arthrorhaphis TH. FR.

Lichenes Arctoi: 303 (1860)

Members of *Arthrorhaphis* are lichenicolous parasymbiotic or pathogenic fungi or lichens which are confined to relatively narrow host spectrum. *Arthrorhaphis alpina* (SCHAER.) R. SANT., *A. citrinella* (ACH.) POELT, *A. grisea* TH. FR. and *A. vacillans* TH. FR. et ALMQ. ex TH. FR. nearly exclusively infect thalli of *Baeomyces rufus*. *A. muddii* OBERMAYER grows on *Dibaeis baeomyces* only. *Arthrorhaphis aeruginosa* R. SANT. et TØNSBERG occurs on *Cladonia* species, *A. olivaceae* R. SANT. et TØNSBERG has been collected only on *Melanelia olivacea*.

Four species, *Arthrorhaphis aeruginosa, A. citrinella, A. grisea* and *A. muddii* are known in the Czech Republic. Exhaustive references to the lichenicolous lichen *Arthrorhaphis citrinella* distribution in the Czech Republic are provided by Vězda and Liška (1999).

Arthrorhaphis aeruginosa R. SANT. et TØNSBERG

Lichenologist 26: 295 (1994)

Ref. CR: None.

Host lichens in CR: *Cladonia chlorophaea, C. coniocraea, C. fimbriata, C. pyxidata, Cladonia* sp.

Other known hosts: *Cladonia digitata, C. macrophylla.*

Notes: *Arthrorhaphis aeruginosa* is a very common species, but it is usually found without its teleomorph. None of our specimens was found with ascomata, but conidiomata seems to be not uncommon. The species is easily recognized by aeruginous colour of infected phyllocladia of its host. It was found on *Cladonia* growing on acid bark of tree trunks, such as *Alnus, Betula, Fagus* and *Picea* or on their stumps along rather light forest paths, heaths and more rarely on mossy boulders.

Distribution: EUROPE: British Isles, Norway (Santesson and Tønsberg 1994: 297), France (Etayo and Diederich 1998: 104), Germany (Türk and Wunder 1999) and N. AMERICA: (Esslinger and Egan 1995: 473), U.S.A.: Oregon, Wa-shington (Santesson and Tønsberg 1994: 298).

Specimens examined (with pycnidia only): CZECH REPUBLIC: Western Bohemia, Brdy Mts., Distr. Plzeň, near the village of Nové Mitrovice, Míšovské buky nature reserve, on the bark of *Fagus sylvatica*, on *Cladonia* sp., 740 m, MTB 6448; 13.XI.1997, coll. Š. Bayerová, det. J. K. (hb. Bayerová). - Ibid.: in glade, on humus, 12.XII.1997, coll. J. K., Š. Bayerová, Z. Pouzar, det. J. K. (PRM 892464, on *C. fimbriata*; PRM 758335, on *C. pyxidata*).

Central Bohemia, Distr. Rakovník, Přílepy, on Přílepská skála hill slope, on humus, on *Cladonia* sp., 400 m, MTB 5847; 7.IX.1997, coll. J. K. (PRM 891173). - Distr. Rakovník, BR Křivoklátsko, near Skryje, on a slope of Dubinky hill, by a forest path, on *C. pyxidata*, 475 m, MTB 6048; 21.VI.1997, coll. J. K. (PRM 891171).

Western Moravia, Distr. Jihlava, Špičák hill, NNR Velký Špičák, in an oak forest, on a boulder over mosses, on *C. coniocraea*, 660 m, MTB 6659; 16.X.1996, coll. J. H. (PRM 890773). - Distr. Třebíč, Kněžice, in the Aleje forest, on the bark of *Alnus glutinosa*, on *C. coniocraea*, 620 m, MTB 6772; 20.IX.1996, coll. J. H. (PRM 891207).

Additional specimens examined (sterile specimens, only with characteristic blue-green colour of host squamules): CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Oráčov, on the S slope of Lovíč hill, on humus in a *Calluna vulgaris*-heath, on *Cladonia pyxidata*, ca. 450 m, MTB 5847; 13.III.1999, coll. J. K. and P. K. (PRM 758463). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná stream, on scree, on *C. chlorophaea*, 310 m, MTB 5949; 5.X.1996, coll. J. H. (PRM 890778). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W slope, in a mixed forest, on roots of *Quercus robur*, on *C. coniocraea*, 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K. (PRM 758520).

Arthrorhaphis grisea TH. FR.

Lichenes Arctoi: 203 (1860)

Syn.: *Gongylia glareosa* KÖRB., Syst. Lich. Germ.: 352 (1855)
Lahmia fuistingii KÖRB., Parerga Lich.: 464 (1865)
Gongylia sabuletorum (FR.) STEIN, Kryptog.-Fl. Schlesien 2 (2): 330 (1879)
Gongylia viridis A. L. SM., Journ. Bot. 69: 42, Tab. 510, fig. 2 (1911)
Gongylia viridis var. *prachoviensis* ZSCHACKE, Kryptog.-Fl. Deutschl. 9(1/1): 572, fig. 310 (1934)

Ref. CR: Vězda (1990: 7), Kocourková-Horáková (1998a: 229), Kocourková-Horáková (1998b: 280, 283-284), Obermayer (1994: 313, 317); as *Gongylia sabuletorum*: Zeiske (1902: 425), as *G. glareosa:* Veselsky (1858: 259); as *Gongylia viridis*: Schade (1955: 257); as *Gongylia viridis* var. *prachoviensis*: Zschacke (1934: 573), Keissler (1938: 573), Schade (1955: 257), Servít (1959: 135).

Exs. CR: Vězda: Lich. sel. exs. 2450.

Sel. lit.: Obermayer (1994: 312-317, fig. 6b, 7d-g).

Host lichen in CR: *Baeomyces rufus*.

Known hosts: *Baeomyces carneus, B. placophyllus* and *B. rufus*.

Observation: *Arthrorhaphis grisea* is a parasite which turns the colour in affected thallus from pale green-grey to grey-black, in the infection centre to green-grey. This is often caused by the presence of algal slimy cover. Slimy algal cover contracts when dry, the affected thallus of the host cracks, sheets with ascomata of *A. grisea* start peeling off and fall off eventually.

Discussion: *Arthrorhaphis grisea* may be found on *Baeomyces rufus* in a mixed infection together with *Thelocarpon epithallinum* LEIGHT. ex NYL. (Kocourková-Horáková 1998b, as *Thelocarpon epibolum* var. *epibolum*; Ihlen 1998: 30, as *T. epibolum*) or with *T. lichenicola* (Ihlen l.c.). In all collections from the Czech Republic where *Thelocarpon epithallinum* occurs on *Baeomyces rufus*, is also present *Arthrorhaphis grisea*, always in the six below mentioned specimens. Ihlen (1998) studied Norwegian lichenicolous fungi on *Baeomyces, Dibaeis* and *Icmadophila*. Of the total of 572 specimens infected by some of the 11 fungi he found *Arthrorhaphis grisea* in 10 specimens (on *B. carneus* and *B. rufus*) and *Thelocarpon epithallinum* in 2 specimens (both on *B. rufus*) only, however, in both cases together with *Arthrorhaphis grisea*. According to our observations, this *Thelocarpon* can colonize both *B. rufus* and *A. grisea* (see below, under the notes to *Thelocarpon* NYL. and *T. epithallinum*). Thus, besides *Arthrorhaphis citrinella*, *Arthrorhaphis grisea* is an additional species of the genus which may be both a parasite and a host as well. *A. citrinella* was observed as a host of the same probably *Thelocarpon* species by Magnusson (1936: 300, as *T. epibolum*) and later in a single collection also by Hafellner and Obermayer (1995: 188, as *T. epibolum*).

In the specimen collected by Vězda near Deblin and labeled as *Phoma physciicola* KEISSL., *Arthrorhaphis grisea* was found in a great quantity together with a fungus causing dark brown circle spots on *Baeomyces rufus*. However, no coelomycete could be found there. *Phoma maculiformans* IHLEN, described on *Dibaeis baeomyces* (Ihlen 1998: 49-51), causes apparently similar type of infection. There are several specimens from the Czech Republic, in which thalli of *Baeomyces rufus* are affected by a fungus showing the same symptoms of infection, but no conidiomata are present there and the infection lesions apparently do not belong to the sterile infection of *Arthrorhaphis grisea*.

Distribution: EUROPE: Austria (Mayrhofer et al. 1989: 215, Berger and Türk 1991: 427, Türk and Poelt 1993: 7, Obermayer 1994: 316, Hafellner and Türk 1995: 603, Boom et al. 1996: 628, Hafellner et al. 1996: 214), British Isles (Purvis et al. 1992: 96, Obermayer 1994: 316), Denmark: Faeroe Islands (Alstrup et al. 1994: 82), France (Ozenda and Clauzade 1970: 174), Germany (Körber 1865: 464, Wirth 1994: 6, Obermayer 1994: 316), Italy (Nimis 1993: 94), Norway (Santesson 1993: 21, Holien and Tønsberg 1994: 69, Ihlen 1998: 40), Poland (Fałtynowicz 1993: 4), Slovak Republic (Obermayer 1994: 317), Sweden (Santesson 1993: 21, Obermayer 1994: 317), Ukraine (Hawksworth 1992: 99, Kondratyuk et al. 1998b: 23, Kondratyuk 1999: 34) and N. AMERICA: (Esslinger and Egan 1995: 473), Canada (Bird et al. 1981: 1251).

Specimens examined (all on *Baeomyces rufus*): CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Železná Ruda, NNR Černé a Čertovo jezero, a glacier cirque of the Černé jezero lake - the central part, moist siliceous pebbles on the ground, about 1200 m, MTB 6845; 11.X.1995, coll. Z. Palice (hb. Palice, specimen of *Thelocarpon epithallinum*). - Šumava Mts., Distr. Klatovy, Modrava, a forest path leading through the peat bog Mlynářská slať, 1050 m, MTB 6946; 28.VI.1995, coll. Z. Palice (hb. Palice, specimen of *Thelocarpon epithallinum*). - Šumava Mts., Distr. Klatovy, 0.5 km S of the settlement Zhůří, by a road, at a forest margin, on soil, 990 m, MTB 6947; 31.V.1994, coll. J. H. (PRM 892552).

Southern Bohemia, Šumava Mts., Distr. Prachatice, between the villa-ges of Horská Kvilda and Kvilda, near Jezerní slať, 1000 m, MTB 6947; 31.V.1989, coll. J. H. and A. Vězda (PRM 758492). - Šumava Mts., Distr. Prachatice, between the villages of Horská Kvilda and Kvilda, in the peat bog Horskokvildská slať, 1070 m, MTB 6947; 6.VI.1993, coll. J. H. (PRM 889655). - Ibid.: 990 m, 2.I.1990 (PRM 887014, specimen of *Thelocarpon epithallinum*). - Šumava Mts., Distr. Prachatice, near the source of the Vltava River, on overhangs by a forest path, 1170 m, MTB 7047; 5.V.1993, coll. J. H. (PRM 887015, specimen of *Thelocarpon epithallinum*).

Northern Bohemia, Lužické hory Mts., Distr. Děčín, near Dolní Podluží, on top of Kozí hřbet hill, in a beech forest, on soil, 652 m, MTB 5153; 27.IV.1991, coll. J. H. (PRM 889656). - Lužické hory Mts., Distr. Děčín, on the SW slope of Mt. Klíč, on an andesite boulder, MTB 5253; ca. 720 m, 5.V.1996, coll. J. H. and P. K. (PRM 758489). - Distr. Liberec, Jizerské hory Mts., NNR Štolpichy in the valley of the Velký Štolpich brook, on a granite boulder, ca. 910 m, MTB 5157; 12.VI.1999, coll. J. K. and P. K. (PRM 758577). - Jizerské hory Mts., Distr. Liberec, Ptačí kupy nature reserve, on the NW slope of Mt. Ptačí kupy, on granite rocks, ca. 950 m, MTB 5157; 13.VI.1999, coll. J. K. and P. K. (PRM 758576).

Eastern Bohemia, Krkonoše Mts. ("Sudeti occid."), Distr. Trutnov, Pec pod Sněžkou, on E slope of Mt. Liščí hora, ca. 1100 m, MTB 5360; VII.1959, coll. A. Vězda (hb. Vězda, as *Lahmia fuistingii*). - Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, in the Obří důl valley, close to a small peat bog, on brookside, on mica-schist stone, ca. 950 m, MTB 5260; 21.V.1999, coll. J. K. and P. K. (PRM 760477, together with *Thelocarpon epithallinum*). - Orlické hory Mts., Distr. Rychnov nad Kněžnou, near Podlesí near the Divoká Orlice River, on a rock by a road, on bryophytes, together with *Thelocarpon epithallinum*, 550 m, MTB 5765; 19.IV.1996, coll. Z. Palice (hb. Palice).

Northern Moravia, Jeseníky Mts. ("Sudeti orient."), Distr. Jeseník, Mt. Sokol, near the village of Vidly, 1100 m, MTB 5969; 15.X.1961, coll. A. Vězda (hb. Vězda, as *Lahmia fuistingii*). - Jeseníky Mts. ("Sudeti orient."), Distr. Jeseník, on the slope of Mt. Praděd, on a ditch margin of a road, on soil, 1450 m, MTB 5969; 1.V.1969, coll. A. Vězda (Vězda: Lich. sel. exs. 2450, PRM 870410). - Jeseníky Mts., Distr. Jeseník, Mt. Jelení hřbet, in the Malá Kotlina valley, 1000 m, MTB 5969; 12.VII.1989, coll. J. H. (PRM 758333). - Jeseníky Mts., Distr. Šumperk, in the valley of Divoká Desná stream, 800 m, MTB 5969; 5.VIII.1975, coll. A. Vězda (hb. Vězda, BRA 165b, both as *Lahmia fuistingii*).

Southerm Moravia, Distr. Blansko, Tišnov, near Deblin, on a ditch margin of a forest path, on soil, 400 m, MTB 6664; IX.1972, coll. A. Vězda (hb. Vězda, as *Phoma physciicola*).

Additional specimens examined: SLOVAK REPUBLIC: Northern Slovakia, Nízke Tatry Mts., in the Mošnica valley, on a ditch margin of a forest path, on humus, on *B. rufus*, 1260 m, 14.VII.1990, coll. J. H. (PRM 889654). - Západné Tatry Mts., Oravice, in the Bobrovecká dolina valley, on *B. rufus*, 1000 m, MTB 6784; 29.V.1990, coll. J. H. (PRM 758583).

Arthrorhaphis muddii OBERMAYER
Nova Hedwigia 58: 309 (1994)

Ref. CR: None.

Sel. lit.: Obermayer (1994: 309-311, figs 3e, f), Ihlen (1998: 40-41, figs 3D, 4).

Host lichen in CR: *Dibaeis baeomyces.*

Known host: *Dibaeis baeomyces* only.

Distribution: According to our knowledge previously reported from Austria (Obermayer 1994: 311), the British Isles (Obermayer 1994: 309) and Norway (Ihlen 1998: 41) only.

Note: *Dibaeis baeomyces* can also be infected by two other ascomycetes, i. e. *Gelatinopsis ericetorum* (KÖRB.) RAMBOLD et TRIEBEL and *Micarea inquinans* (TUL.) COPPINS (Rambold and Triebel 1990: 169, Ihlen 1998: 48-49), with almost black apothecia. However, *A. muddii* is well characterized by 12-15-septate spores, of the size (55-)65-95 x 3.5-4.5(-5) µm.

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, Nové Údolí, a sandy quarry ca. 0.5 km ENE from the railway-stop, 48°50' N, 13°48' E, on *Dibaeis baeomyces,* 805 m, MTB 7249; 17.X.1998, coll. J. K. and Z. Palice (PRM 758488, hb. Palice).

Athelia PERS.
Mycol. Eur. 1: 83 (1822)

In the seventies several taxonomic treatments on *Athelia* species were published (Jülich 1972, Eriksson and Ryvarden 1973). Their conclusions were incorporated into the treatments of lichenicolous species by Arvidsson (1976) and Diederich (1986: 2, 1989: 230-231). The fact that lichenicolous fungi of this genus are not investigated and treated by lichenologists usually, is probably the cause why lichenicolous occurrences of this genus remain still insufficiently evaluated.

Athelia epiphylla PERS. is the type species of this genus. Considering the wider concept of this species at present (Eriksson and Ryvarden 1973), *Athelia epiphylla* s. l. may comprise a number of species including three facultative lichenicolous ones: *A. alnicola* (BOURDOT et GALZ.) JÜLICH, *A. epiphylla* s. str. and *A. salicum* PERS. as published by Jülich (1972). *A. epiphylla* s. l. is characterized by basidia of 15-20 x 5-6 µm, usually with 4 sterigmata and rather smaller subcylindrical, narrowly ellipsoid or ovate spores of 6-10 x 3-5 µm and thin and white to light yellowish basidiomata. It occurs on wide range of substrata, such as tree bark, leaves, herb stems, bryophytes and lichens. Among a number of *A. epiphylla* s. str. older specimens kept in the PRM herbarium (mostly revised by Jülich), only one (PRM 617824) occurs on lichens, but none of *A. alnicola* and *A. salicum* specimens we have found lichenicolous.

Athelia arachnoidea (BERK.) JÜLICH is a widely distributed species and occurs commonly on lichens. Its type specimen was shown to be a parasite by J. Eriksson (in Arvidsson, 1976) and also by Arvidsson himself (1976). The species is characterized by thin white basidiomata, large basidia of 20-30 x 5-7 µm with normally 2 sterigmata and spores narrowly ellipsoid to narrowly obovate, about 8-10 x 4-5 µm. *Athelia arachnoidea* should be the most common lichenicolous *Athelia* in polluted areas. According to Arvidsson (1976) followed by Diederich (1989), *A. arachnoidea* produces sclerotia and it is parasitic on algae and lichens, whereas *A. epiphylla* should be a saprophytic species never producing sclerotia. Nevertheless, we found such lichenicolous collections where both the sclerotia and basidiomata with mature basidia were developed and whose measurements fit well the description of *A. epiphylla* (see under *A. epiphylla*). Consequently, many Czech lichenicolous specimens found with sclerotia only, which we indicated in the herbarium as being *A. arachnoidea,* are currently impossible to identify. These are designated in this checklist as *Athelia* spp. (see below). That means probably that not all previous reports based on the sterile specimens with sclerotia must necessarily belong to *Athelia arachnoidea.*

Parmasto (1998) studied 30 Estonian lichenicolous specimens of *Athelia epiphylla*-complex and found 3 specimens with pellicular hymenium with fully developed and spore-bearing basidia only. In contrast to our observations he found two of the fertile specimens with almost equal number of 2- and 4-spored basidia and therefore he supports the existence, one lichenicolous species only as well as J. Eriksson (in Arvidson, 1976) and Arvidson himself. In all those specimens he also found several or many hyphae of mycelium covered by those short rode-like crystals of calcium oxalate-dihydrate, which had been previously shown in Adams and Kropp (1996: 464, fig. 5).

White-margined lesions caused by *Athelia* spp. on bark of living trunks of deciduous trees are very common in the Czech Republic, especially in polluted areas, e. g. towns and their surroundings. They are mostly seen to be the best developed in autumn as growing on algal crusts or on such low sensitive lichens to air pollution as *Lecanora conizaeoides* and *Scoliciosporum chlorococcum.*

Athelia epiphylla PERS.
Mycol. Europ. 1: 84 (1822)

Ref. CR: Jülich (1972: 83).

Host lichens in CR: *Hypogymnia physodes, Lecanora conizaeoides, Micarea prasina, Mycoblastus fucatus, Scoliciosporum chlorococcum.*

Other known hosts: *Lecanora* sp., *Parmelia* sp.

Observation: Both sclerotia and basidiomata with four sterigmata were found in the specimen from Western Bohemia in which *A. epiphylla* strongly damages *Lecanora conizaeoides, Micarea prasina, Mycoblastus fucatus* and *Scoliciosporum chlorococcum.* In a part of the separately kept specimen from this collection is *A. epiphylla* mixed with another vigorous parasite *Lichenoconium erodens* (indicated as PRM 892509). Both sclerotia and basidiomata were also developed in the additional lichenicolous specimen from Germany.

Basidiomata with basidia only were found in that specimen where *Athelia epiphylla* is pathogenic on *Hypogymnia physodes*, and saprophytic on the bark and on *Quercus* leaves. Most of its basidia possess four sterigmata.

For additional notes see under the generic discussion.

Distribution: EUROPE: Austria (Türk and Poelt 1993: 9), Germany, Finland (Vitikainen et al. 1997: 11), Norway, Sweden (Santesson 1993: 27) and N. AMERICA: (Esslinger and Egan 1995: 474).

Specimens examined: CZECH REPUBLIC: Northern Bohemia, České středohoří Mts., Mt. Lhota near Milešov, on a *Quercus* decaying branch bark, leaves and *Hypogymnia physodes*, MTB 5449; 19.VII.1956, coll. and det. M. Svrček (PRM 617824).

Western Bohemia, Brdy Mts., Distr. Plzeň-South, Míšov, Míšovské buky nature reserve, on *Lecanora conizaeoides*, *Micarea prasina*, *Mycoblastus fucatus* and *Scoliciosporum chlorococcum*, 750 m, MTB 6448; 12.XII.1997, coll. Z. Pouzar, J. K., Š. Bayerová, det. J. K. (PRM 892542). - Ibid.: (on *Lecanora conizaeoides* PRM 892509, specimen of *Lichenoconium erodens*).

Additional specimen examined: GERMANY: Nordhein-Westfalen, Hermelsbach near Siegen, on a living *Quercus pedunculata* tree bark, on *Lecanora* sp. and *Parmelia* sp., 27.XI.1938, coll. A. Ludwig (PRM 662178, as *Corticium centrifugum*).

Athelia spp.

Host lichens in CR: *Hypogymnia physodes, Physcia adscendens, P. tenella, Lecanora conizaeoides, Scoliciosporum chlorococcum, Xanthoria candelaria.*

The above cited hosts may relate to more than one species of *Athelia*.

Material collected with sclerotia only: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, near the village of Nezdice na Šumavě, on the bark of *Sorbus aucuparia*, on *Xanthoria candelaria*, 680 m, MTB 6847; 9.VI.1995, coll. J. H. and P. K. (PRM 758307).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Borová Lada, by a road, on the bark of *Acer pseudoplatanus*, on *Physcia tenella*, 900 m, MTB 7047; 11.V.1996, coll. J. H. (PRM 758296, together with *Lichenoconium xanthoriae*; PRM 758295, specimen of *L. xanthoriae*). - Šumava Mts., Distr. Prachatice, Borová Lada, by a road, on the bark of *Prunus avium*, on *Hypogymnia physodes*, 900 m, MTB 7047; 9.VI.1995, coll. J. H. (PRM 758329, specimen of *Lichenoconium erodens*).

Central Bohemia, Distr. Rakovník, Podbořánky, in a forest at margin of peat bog, on the bark of *Pinus sylvestris*, on *Lecanora conizaeoides* and *Scoliciosporum chlorococcum*, 490 m, MTB 5946; 24.VII.1997, coll. J. K. and P. K. (PRM 892175, together with *Lichenoconium erodens*). - Distr. Rakovník, between the villages of Kněževes and Chrášťany, on the bark of *Populus nigra*, on *Lecanora conizaeoides* and *Physcia adscendens*, 370 m, MTB 5847; 13.II.1999, coll. J. K. and P. K. (PRM 758313). - Distr. Kolín, Louňovice, NNR Voděradské bučiny, on the bark of *Quercus robur*, on *L. conizaeoides*, 400 m, MTB 6054; VII.1996, coll. I. Kazdová, det. J. K. (PRM 892171, specimen of *Lichenoconium erodens*).

Bispora CORDA

Icon. Fung. 1: 9 (1837)

The genus belongs to mitosporic dematious fungi. Two lichenicolous species are known, i. e. *Bispora christiansenii* D. HAWSKW. and the more recently described *Bispora lichenum* DIEDERICH (Diederich 1990: 303). Both species, according to Diederich (l.c.) show some differences from *Bispora* s. str.

Bispora christiansenii D. HAWSKW.

Bull. Brit. Mus., Nat. Hist., Bot. ser. 6: 207 (1979)
Pl. 2, fig. 1.

Ref. CR: None.

Sel. lit.: Hawksworth (1979a: 207-209, fig. 9), Diederich (1990: 304).

Host lichen in CR: *Lecidella stigmatea.*

Other known hosts: *Arthonia excentrica, Buellia* sp., *Caloplaca castellana, C.* cf. *cerina, C. citrina, C. cerina* var. *cyanolepra, C. variabilis, Candelariella canadensis, C. vitellina, Catillaria chalybeia, Clauzadea immersa, Coriscium viride, Lecania cyrtella, Lecania* sp., *Lecanora albescens, L. carpinea, L. chlarotera, L. dispersa, L. horiza, L. polytropa, L. soralifera, L.* cf. *subrugosa, Lecidea turgidula, Lecidea* sp., *Lecidella elaeochroma, Lobaria amplissima, Micarea leprosula, Phacopsis vulpina, Phaeophyscia orbicularis, Physcia adscendens, Ramalina calicaris, Rhizocarpon* sp., *Rinodina turfacea, Strangospora pinicola, Stereocaulon condensatum, Usnea* sp.

Distribution: This hyphomycete is widely distributed especially in continental Europe, but there are also reports from North Africa and North America.

EUROPE: Austria (Hafellner 1994b: 4, Hafellner and Mauer 1994: 116), Belgium (Diederich 1986: 18), British Isles (Hawksworth 1979a: 209, 1983: 32), Denmark (Hawksworth 1979a: 209, Alstrup et al. 1992: 128, Alstrup et al. 1995: 88), Finland, Germany, Italy (Hawksworth 1979a: 209), France (Bricaud and Roux 1990: 120, Bricaud et al. 1991: 143), France: Corsica (Hafellner 1994a: 221), Germany (Wirth 1994: 7), Italy: Sicily (Boom 1992: 96), Luxembourg (Diederich 1986: 17, 1989: 49, 237-238, John 1990: 90), Norway (Santesson 1993: 36), Norway: Spitsbergen (Aptroot and Alstrup 1991: 74, Alstrup and Olech 1993: 35), Spain (Martínez and Hafellner 1998: 275), Poland (Fałtynowicz 1993: 6, Alstrup and Olech 1996: 750), Spain (Diederich 1986: 18, Calatayud et al. 1995: 369, Martínez and Hafellner 1998: 275), Sweden (Alstrup 1991: 65, Santesson 1993: 36), Ukraine (Hawksworth 1992: 99, Kondratyuk and Khodosovtsev 1997: 588, Kondratyuk 1999: 34); ASIA: Russia: Putorana Plateau (Zhurbenko 1996: 224, 1998: 155, Zhurbenko and Hafellner 1999: 73), Taymyr Peninsula (Zhurbenko 1998: 155); N. AFRICA: Spain: Canary Islands (Hafellner 1996a: 2, Martínez and Hafellner 1998: 275) and N. AMERICA: Greenland (Alstrup and Hawksworth 1990: 19).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, LPA Český Kras (Bohemian Karst), Sedlec, on diabasic rocks, on *Lecidella stigmatea*, 310 m, MTB 6050; 19.X.1989, coll. J. H. (PRM 889665).

Buelliella FINK

Lich. Fl. U.S.: 372 (1935)

The genus *Buelliella* was treated by Hafellner (1979) in a thorough revision of the genus *Karschia*. So far, it comprises only three lichenicolous fungi.

Buelliella physciicola POELT et HAFELLNER

Nova Hedwigia, Beih. 62: 155 (1979)

Ref. CR: Hafellner (1979: 155, 1995a: 428), Vězda (1979b: 7).

Sel. lit.: Hafellner (1979: 155-158, figs 33, 34).

Exs. CR: Vězda: Lich. sel. exs. 1675.

Host lichens in CR: *Phaeophyscia orbicularis, P. sciastra, Phaeophyscia* sp.

Other known hosts: *Phaeophyscia endococcinoides, P. hispidula, P.* cf. *hirtuosa.*

Ecology: All the Czech and Moravian localities are situated in lowlands in rather warm areas. The species is usually found on S or SW exposed rocks or walls in sunny places. It is a parasymbiotic fungus which doesn't cause any serious damage to its hosts.

Distribution: *Buelliella physciicola* is a very widely distributed species, known in both hemispheres.

EUROPE: Austria (Türk and Poelt 1993: 17, Hafellner 1979: 158, 1995a: 428), British Isles (Hawksworth 1990: 395), Czech Republic, Italy, Luxembourg (Hafellner 1995a: 428); ASIA: Japan (Hafellner 1979: 158, 1995a: 428); N. AFRICA: Spain: Canary Islands (Hafellner, 1995a: 428, 1995c: 16); N. AMERICA: (Esslinger and Egan 1995: 478), Mexico (Hafellner 1995a: 428, Santesson 1998: 3), Canada: British Columbia (Alstrup and Cole 1998: 222) and S. AMERICA: Peru (Santesson 1988: 2).

Speci mens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, in the village of Krakovec, below the castle, on a spilite rock, on *Phaeophyscia orbicularis,* 435 m, MTB 5947; 2.XI.1996, coll. J. H. (PRM 889745). - Ibid.: 26.I.1997, coll. J. H. (PRM 892512; 892515, specimen of *Arthonia phaeophysciae*). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock at road by the Berounka River, on rhyolite, on *Phaeophyscia sciastra*, 250 m, MTB 5949; 28.IX.1997, coll. J. K. and P. K. (PRM 892040). - Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on mosses, on *Phaeophyscia sciastra*, 370 m, MTB 6149; 6.VII.1998, coll. P. K. and J. K. (PRM 892157).

Southern Moravia, Distr. Znojmo, above the Moravský Krumlov town, on Křížová hora hill slope, on *Phaeophyscia sciastra*, 280 m, MTB 6963; 16.IV.1974, coll. and det. J. Poelt and A. Vězda (Vězda: Lich. sel. exs. 1675, PRM 821995 - Isoty Vězda - Topotypus) - Ibid.: 280 m, 2.VIII.1988, coll. J. H. and A. Vězda (PRM 892148 - Topotypus).

Capronia SACC.

Syll. Fung. 2: 288 (1883)

Several new lichenicolous species from this genus belonging to *Herpotrichiellaceae* have been recently described. In the Czech Republic only one species has been found.

Capronia peltigerae (FUCKEL) D. HAWKSW.

Syst. Ascomycetum 6: 120 (1987)

Syn.: *Herpotrichiella peltigerae* (FUCKEL) D. HAWKSW., Trans. Br. mycol. Soc. 74: 371 (1980)

Ref. CR: None.

Sel. lit.: Hawksworth (1980b: 371, as *Herpotrichiella peltigerae*).

Host lichen in CR: *Peltigera rufescens.*

Other known hosts: *Peltigera aphthosa, P. britannica, P. canina, P. didactyla, P. malacea.*

Ecology: The fungus grows on dead parts of thalli of various *Peltigera* spp.

Distribution: EUROPE: Austria (Hafellner 1994b: 4), Belgium (Clauzade et al. 1989: 39), Finland (Vitikainen 1991: 37, Vitikainen et al. 1997: 17), Luxembourg (Diederich et al. 1988: 33, Diederich et al. 1991: 16, Goffinet et al. 1994: 200), Spain (Martínez and Hafellner 1998: 276), Sweden (Hawksworth 1990: 397, Eriksson 1992: 24, Santesson 1993: 51), Switzerland (Hawksworth 1980b: 371, as *Herpotrichiella peltigerae*; 1990: 397), Ukraine (Hawksworth 1990: 397, Kondratyuk and Kolomiets 1997: 43, Kondratyuk et al. 1998b: 47, Kondratyuk 1999: 34) and N. AMERICA: Greenland (Hawksworth 1990: 397, Alstrup and Hawksworth 1990: 21).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, LPA Český Kras, near Hostim, on diabasic rocks, on *Peltigera rufescens*, 260 m, MTB 6050; 25.IX.1998, coll. J. K. (PRM 892518).

Cecidonia TRIEBEL et RAMBOLD

Nova Hedwigia 47: 280 (1988)

This genus belonging to *Lecideaceae* was established by Triebel and Rambold (1988: 280) for two species, i. e. *Cecidonia umbonella* and *Cecidonia xenophana* (KÖRB.) TRIEBEL et RAMBOLD.

Cecidonia xenophana (KÖRB.) TRIEBEL et RAMBOLD

Nova Hedwigia 47: 291 (1988)

Ref. CR: Palice (1999b: 298).

Sel. lit.: Triebel and Rambold (1988: 291-295, figs 1, 3, 4, 6), Triebel (1989: 132-134, fig. 16c).

Host lichen in CR: *Porpidia glaucophaea.*

Other known hosts: *Porpidia cinereoatra, P. contraponenda, P. crustulata, P. flavicunda, P. musiva, P.* cf. *platycarpoides, P. tuberculosa, Porpidia* sp.

Ecology: *Cecidonia xenophana* is restricted to the species of *Porpidia* growing on siliceous substrata and except for other features it is separated from the closely related *C. umbonella* by occurrence on various *Lecidea* species.

Distribution: So far, the species is known from the Northern Hemisphere, where it occurs in montane and alpine regions.

EUROPE: Austria (Triebel and Rambold 1988: 295, Türk and Poelt 1993: 26, Hafellner 1997: 458), British Isles (Triebel and Rambold 1988: 292, Triebel 1989: 133, Purvis et al. 1992: 336, Hitch 1997b: 33), Iceland (Triebel and Rambold 1988: 292-293), Ireland (Triebel and Rambold 1988: 292-293, Triebel 1989: 133), Norway (Triebel and Rambold 1988: 293-294, Triebel 1989: 169, Santesson 1993: 56, Holien and Tønsberg 1994: 69), Poland (Stein 1879: 263, Triebel and Rambold 1988: 292, Triebel 1989: 133, Fałtynowicz 1993: 10), Sweden (Triebel and Rambold 1988: 293-294, Santesson 1993: 56, 1994a: 3) and N. AFRICA: Spain: Canary Islands (Triebel and Rambold 1988: 295, Hafellner 1995c: 22).

Specimen examined: CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Úpská jáma corrie, a rock-wall NE of the

"Limprichtova skalka" rock, on thallus of *Porpidia glaucophaea*, 1350 -1400 m, MTB 5360; 3.VI.1998, coll. and det. Z. Palice (hb. Palice).

Cercidospora KÖRB. em. HAFELLNER

Körber, Parerga Lichenol.: 465 (1865)
Hafellner, Herzogia 7: 354 (1987)

The genus *Cercidospora* comprises lichenicolous and algicolous fungi. It belongs to Dothideales incertae sedis.

Cercidospora epipolytropa (MUDD) ARNOLD

Flora 57: 154, 175 (1874)

Syn.: *Didymella epipolytropa* (MUDD) BERL. et VOGL., Syll. Fung., Addit. ad vol. 1-4: 98 (1886)

Ref. CR: None.

Sel. lit.: Hafellner (1987: 357-359, fig. 2), Grube and Hafellner (1990: 338).

Host lichen in CR: *Lecanora polytropa.*

Other known hosts: *Lecanora frustulosa, L. geophila, L. intricata, L. orbicularis, L. stenotropa.*

Also reported from *Psora albilabra* and *Squamarina cartilaginea* but these reports are referred to other species of *Cercidospora.*

Distribution: According to Triebel (1991: 270), *Cercidospora epipolytropa* occurs in montane to alpine regions of Europe, Asia, North Africa and North America (incl. Greenland). Almost all the Czech and Moravian localities are situated in lowlands in rather warm areas.

EUROPE: Austria (Türk and Wittmann 1987: 68, Mayrhofer et al. 1989: 220, Wittmann et al. 1989: 458, Hafellner 1991: 99, Hofmann et al. 1993: 850, Obermayer 1993: 142, Türk and Poelt 1993: 27, Hofmann et al. 1995: 230, Hafellner and Türk 1995: 607, Hofmann et al. 1998: 158), British Isles (Hawksworth et al. 1980: 26), Denmark: Bornholm (Alstrup 1994: 51), Denmark: Faeroe Islands (Alstrup et al. 1994: 86, Alstrup and Christensen 1999: 23), Estonia (Jüriado et al. 1999: 26), Finland (Vitikainen 1991: 37, Vitikainen et al. 1997: 18), France (Rondon 1970: 739, as *Didymella epipolytropa*; Hafellner 1987: 359), France: Corsica (Hafellner 1994a: 223), Germany (Wirth 1994: 9, Heibel et al. 1998: 175, 177), Italy (Hafellner 1987: 359), Norway (Hafellner 1987: 359, 1993: 751, Santesson 1993: 56), Poland (Alstrup and Olech 1996: 750), Spain (Hafellner 1987: 359, Hafellner and Sancho 1990: 368), Sweden (Hafellner 1987: 359, Alstrup 1991: 65, Santesson 1993: 56, 1994a: 4); ASIA: Nepal (Hafellner 1987: 359), Russia: Krasnoyarsk (Santesson 1998: 4), Putorana Plateau (Zhurbenko 1996: 224, Zhurbenko and Hafellner 1999: 73), Taymyr Peninsula (Zhurbenko and Santesson 1996: 151); N. AFRICA: Morocco (Egea 1996: 104), Spain: Canary Islands (Hafellner 1995c: 22, 1996a: 2, both as *C. ulothii* KÖRB.) and N. AMERICA: (Esslinger and Egan 1995: 482), Greenland (Alstrup and Hawksworth 1990: 22), U.S.A.: Wyoming (Triebel 1991: 270).

The Vězda's report of *C. epipolytropa* on *Megaspora verrucosa* (as *Lecanora verrucosa*) from the Slovak Republic (Vězda 1970: 221) belongs to *Cercidospora verrucosaria* (LINDS.) ARNOLD (see below, specimen compared).

Specimens examined (all on *Lecanora polytropa*): CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Horská Kvilda, on vertical side of the road-bridge over the Hamerský potok stream, on granite, 1035 m, MTB 6947; 8.VI.1995, coll. J. H. (PRM 758521).

Central Bohemia, Distr. Rakovník, Bedlno, in a quarry, on a granite rock, 485 m, 330 m, MTB 5847; 4.III.1997, coll. J. H. and P. K. (PRM 758519, with *Lichenothelia* sp.). - Distr. Rakovník, Přílepy, on a sandstone rock, MTB 5847; 16.II.1996, coll. J. H. (PRM 892504). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite outcrops, 360 m, MTB 5949; 29.VI.1998, coll. J. K. and P. K. (PRM 892461). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W slope, on rhyolite, 330 m, MTB 5949; 31.VIII.1997, coll. J. K. and P. K. (PRM 891197). - The city of Praha, Motol, Kalvárie, S slopes of a small crest of diabasic rocks, 325 m, MTB 5951; 13.II.1998, coll. J. K. and P. K. (PRM 758697).

Northern Bohemia, Distr. Česká Lípa, near Provodín, Lysá skála hill, on basalt rocks, 410 m, MTB 5353; 10.VII.1998, coll. J. K. and P. K. (PRM 758269). - Distr. Liberec, Jizerské hory Mts., Ptačí kupy nature reserve, on the NW slope of Mt. Ptačí kupy, on granite rocks, ca. 980 m, MTB 5157; 13.VI.1999, coll. J. K. and P. K. (PRM 758574). - Distr. Liberec, Jizerské hory Mts., NNR Štolpichy, in the valley of the Velký Štolpich brook, near a waterfall, on a granite boulder, ca. 760 m, MTB 5157; 12.VI.1999, coll. J. K. and P. K. (PRM 758575).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, on the SE exposed slope of Mt. Studniční hora, on mica-schist boulders, 1250 m, MTB 5260; 21.V.1999, coll. J. K. and P. K. (PRM 760472). - Krkonoše Mts., Distr. Trutnov, Velká Úpa, in the Vavřincův důl valley, on a granite boulder in a meadow, 950 m, MTB 5360; 4.V.1997, coll. J. K. (PRM 758711).

Western Moravia, Distr. Jihlava, Rácov, on a gneiss boulder at margin of a field, ca. 630 m, MTB 6758; 16.X.1996, coll. J. H. (PRM 891188). - Distr. Jihlava, 3 km W of the Jihlava town, in the Zaječí skok nature reserve above the Jihlava River, on gneiss, 510 m, MTB 6559; 15.X.1996, coll. J. H. (PRM 891176).

Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov reservoir, on the S exposed slope near the "Chvalatická zátoka" creek, on quartzite boulders, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 892659).

Additional specimen examined: FRANCE: Corsica, Haute-Corse, 1-1.5 km S of Vizzavona, near of the valley of brook, on *Lecanora polytropa* s. l., ca. 1000-1100 m, 25.VIII.1993, coll. M. Hecklau, det. J. K. (STU).

Specimen compared:
Cercidospora verrucosaria (LINDS.) ARNOLD

SLOVAK REPUBLIC: Northern Slovakia, Červené vrchy Mts., below the top of Mt. Temniak, on humus on calcite, in hymenium of apothecia *Megaspora verrucosa* (as *Lecanora verrucosa*), ca. 1900 m, VII.1965, coll. A. Vězda (hb. Vězda).

Cercidospora macrospora (ULOTH) HAFELLNER et NAV.-ROS.

Intern. Assoc. Lich. 3 (Salzburg), Abstracts: 121 (1996)

Syn.: *Cercidospora ulothii* KÖRB., Parerga Lich.: 466 (1865)
Didymella epipolytropa var. *ulothii* VOUAUX, Bull. Soc. mycol. France 29: 89 (1913)

Ref. CR: None.

Sel. lit.: Hafellner (1987: 362-363, fig. 1, as *C. ulothii*), Grube and Hafellner (1990: 342, as *C. ulothii*).

Host lichens in CR: *Lecanora garovaglii, L. muralis.*

Other known hosts: *Lecanora dispersoareolata, L. mellea, L. versicolor.*

Also reported by Zhurbenko (1996: 224) on thallus of *Lecanora geophila.* This lichen had been previously known to be host of *Cercidospora epipolytropa* only.

Distribution (if not mentioned otherwise all as *C. ulothii*): EUROPE: Austria (Hafellner 1987: 363, Berger and Türk 1993a: 176, Türk and Poelt 1993: 27, Wittmann and Türk 1994: 193, Hafellner and Türk 1995: 607), British Isles, Croatia (Hafellner 1987: 363), France (Clauzade et al. 1989: 40), Germany (Vouaux 1913: 90, as *Didymella epipolytropa* var. *ulothii*; Hafellner 1987: 363), Italy (Hafellner 1987: 363), Italy: Sardinia (Nimis and Poelt 1987: 81), Macedonia (Hafellner 1987: 363), Norway: Spitsbergen (Vouaux 1913: 90, as *Didymella epipolytropa* var. *ulothii*; Triebel 1991: 271), Poland (Fałtynowicz 1993: 10), Romania (Hafellner 1987: 363, Vězda 1975a: 7), Spain (Calatayud and Barreno 1994: 29), Sweden (Santesson 1993: 57, 1994b: 2; Santesson 1998: 4, as *C. macrospora*), Ukraine (Kondratyuk et al. 1998b: 49, Kondratyuk 1999: 34); ?ASIA: China (Triebel et al. 1991: 271); N. AFRICA: Morocco (Maire and Werner 1938: 29, as *Didymella epipolytropa* var. *ulothii*; Werner 1959: 112, as *D. epipolytropa*), Spain: Canary Islands (Hafellner 1995c: 22, 1996a: 2) and N. AMERICA: (Esslinger and Egan 1995: 482), Canada (Triebel 1991: 271), Canada: British Columbia (Alstrup and Cole 1998: 224), U.S.A. Arizona, California, New Mexico, Utah (Hafellner 1987: 363, Triebel et al. 1991: 271), Mexico (Hafellner 1987: 363).

Specimens examined (if not given otherwise all on *Lecanora muralis*): CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, 435 m, MTB 5947; 14.IX.1996, coll. J. H. (PRM 889664, as *C. ulothii*). - Ibid.: 26.I.1997, coll. P. K. and J. H. (PRM 890774). - Distr. Rakovník, Kněževes, on a garden-fence wall, 375 m, MTB 5847; 17.VIII.1998, coll. J. K. and P. K. (PRM 892513). - Distr. Rakovník, Kolešovice, near the school building, on a wall, 370 m, MTB 5847; 8.XII.1996, coll. P. K. (PRM 890775). - Distr. Rakovník, BR Křivoklátsko, between Skryje and Šlovice, above the Berounka River, on a spilite rock, on *Lecanora garovaglii*, 290 m, MTB 6048; 26.VII.1998, coll. J. K. and P. K. (PRM 892511). - Distr. Beroun, BR Křivoklátsko, Stará Ves near Hudlice, on diabasic rocks, 320 m, MTB 6049; 10.XI.1996, coll. J. H. and P. K. (PRM 891167, as *C. ulothii*). - Distr. Beroun, LPA Český kras, near Hostim, on diabasic rocks, 260 m, MTB 6050; 25.IX.1998, coll. J. K. (PRM 892532). - The city of Praha, Jinonice, on diabasic rocks at the Kační quarry-margin, 295 m, MTB 5952; 30.XII.1991, coll. J. H. - (PRM 889663, as *C. ulothii*). - The city of Praha, in the Dalejské údolí valley near the old quarry Aretusinová rokle, on a diabasic outcrop, 310 m, MTB 5952; 23.I.1993, coll. J. H. (PRM 758587). - The city of Praha, Malá Ohrada, by the Prokopský potok brook, Albrechtův vrch hill, on a diabasic rock, 300 m, MTB 5952; 23.IX.1999, coll. J. K. (PRM 760464).

Southern Moravia, Distr. Znojmo, the Podyjí NP, in the Havranické vřesoviště heath, on a granite boulder, 320 m, MTB 7161; 4.VI.1998, coll. J. K. (PRM 892527, 758288).

Cercidospora solearispora CALATAYUD, NAV.-ROS. et HAFELLNER ined.

Ref. CR: None.

Host lichens in CR: *Aspicilia cinerea, Aspicilia contorta, Aspicilia* sp.

Known hosts: According to Navarro-Rosinés et al. (1996: 121), who proposed several new species of *Cercidospora*, the species is confined to a limited group of *Aspicilia* species.

Observation: Our collections are characterized by the ascomata typical for the *Cercidospora* species with blue-green color around ostiolum, the asci of 58-86 x 13-16 µm and the hyaline, 1-septate, ellipsoid-fusiform, soleiform spores, of (19-) 21-28 x 6-8.5 µm. Contrary to the width of spores in the type measurements, in our specimens we found the spores slightly wider. According to Hafellner (pers. com.), the ascospores lenth of 28 µm is also relatively large for *C. solearispora*.

Distribution: The distribution of this species is currently not known to me.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on *Aspicilia* sp., 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 892544). - Ibid. on *Aspicilia* sp. (PRM 758496, specimen of *Marchandiomyces corallinus*). - Distr. Beroun, BR Křivoklátsko, Stará Ves near Hudlice, on diabasic rocks, on *Aspicilia* sp., 340 m, MTB 6049; 10.XI.1996, coll. J. H. and P. K. (PRM 892528). - Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *Aspicilia contorta*, 340 m, MTB 6050; 21.III.1997, coll. J. H. (PRM 890796). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, on rocks of Dívčí skok hill, on lydite, on *Aspicilia cinerea*, ca. 300 m, MTB 5951; 27.XI.1998, coll. P. K. and J. K. (PRM 892632).

Chaenothecopsis VAIN.

Acta Soc. Fauna Fl. Fenn., 57(1): 70 (1927)

Chaenothecopsis species are calicioid lichenicolous or saprophytic fungi which are generally difficult to identify. Many species are insuficiently known. Several below treated species have been know from the Czech Republic only recently.

Chaenothecopsis consociata (NÁDV.) A. F. W. SCHMIDT

Mitt. Staatsinst. Allg. Bot. Hamburg 13: 148 (1970)

Syn.: *Calicium consociatum* NÁDV., Stud. Bot. Čech. 5: 10 (1942)

Ref. CR: None.

Sel. lit.: Schmidt (1970: 148-151), Tibell (1975: 44-45; 1984: 665), Titov and Tibell (1993: 319-320).

Host lichen in CR: *Chaenotheca chrysocephala.*

Known host: Restricted to *Chaenotheca chrysocephala* only.

Ecology: *Chaenothecopsis consociata* is a parasitic or parasymbiotic species on the thallus of *Chaenotheca chrysocephala* causing inhibition of growth of its apothecia. It occurs mainly on trunks of old trees in old humid coniferous forests in the boreal and boreo-nemoral zone (Titov and Tibell 1993: 320).

Distribution: According to Titov and Tibell (1993: 320), this species is widely distributed in the Northern Hemisphere.

EUROPE: Austria (Schmidt 1970: 151, Türk and Wittmann 1987: 71, Türk and Poelt 1993: 30), Estonia (Lõhmus 1998: 44, Jüriado et al. 1999: 29), Finland (Vitikainen 1991: 37, Vitikainen et al. 1997: 19), France (Bricaud and Roux 1990: 124), Germany (Schmidt 1970: 151, Wirth 1981: 5, 1994: 9), Latvia (Sundin and Thor 1990: 21), Norway (Santesson 1993: 60), Poland (Fałtynowicz 1993: 11), Russia (Hermansson and Kundryatseva 1995: 77), Slovak Republic (Nádvorník 1942: 10, as *Calicium consociatum*), Sweden (Vězda 1975b: 1, Tibell 1981a: 54, Karström and Thor 1991: 87, Santesson 1993: 60), Switzerland

(Schmidt 1970: 151), Ukraine (Kondratyuk et al. 1998b: 53, Kondratyuk 1999: 34); ASIA: Russia: Baikal (Urbanavichene 1998: 114), Russia: Chabarovsk (Titov and Tibell 1993: 320), Russia: Russian Arctic (Andreev et al. 1996: 143), China (Nádvorník 1942: 10, as. *C. consociatum*) and N. AMERICA: (Esslinger and Egan 1995: 483), Canada: British Columbia (Tibell 1975: 45), U.S.A.: Michigan (Tibell 1975: 45).

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, on the E slope of Mt. Sokol near Horská Kvilda and Zhůří, on the bark of *Picea abies*, on thallus of *Chaenotheca chrysocephala*, 1050 m, MTB 6947; 4.VI.1993, coll. J. H. (PRM 758613).

Chaenothecopsis epithallina TIBELL
Symb. Bot. Ups. 21(1): 116 (1975)

Ref. CR: Palice (1999b: 299).

Sel. lit.: Tibell (1975), Hawksworth (1978: 183, fig. 2A), Purvis et al. (1992: 183).

Host lichen in CR: *Chaenotheca trichialis.*

Known hosts: *Chaenotheca trichialis* and free living algae.

Ecology: Parasitic on the thallus *Chaenotheca trichialis,* also probably on algae (*Stichococcus*). The species usually grows on decorticated trunks of *Picea* in old forests.

Distribution: EUROPE: Austria (Türk and Poelt 1993: 30), British Isles (Hawksworth 1978: 183, Hawksworth et al. 1980: 28, Purvis et al. 1992: 183), Estonia (Lõhmus 1998: 44, Jüriado et al. 1999: 29), Finland (Vitikainen et al. 1997: 19), Italy (Nimis 1993: 219, Puntillo 1996: 63), Norway (Santesson 1993: 60), Russia (Hermansson and Kundryatseva 1995: 77), Sweden (Tibell 1975: 46, Karström and Thor 1991: 87, Thor 1992: 22, Santesson 1993: 60, Rydberg 1997: 47), Ukraine (Kondratyuk et al. 1998b: 53, Kondratyuk 1999: 34) and N. AMERICA: Canada: (Purvis et al. 1992: 183, Esslinger and Egan 1995: 483), British Columbia (Tibell 1975: 46).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Nová Pec: glacial cirque of the Plešné jezero lake - N part, on *Picea*, on thallus of *Chaenotheca trichialis*, 1200-1250 m, MTB 7249; 28.V.1994, coll. Z. Palice, det. L. Tibell (hb. Palice). - Šumava Mts., Distr. Prachatice, climax spruce forest on N slopes between Mt. Trojmezná hora and Mt. Plechý, dead *Picea*, on thallus of *C. trichialis*, ca. 1300-1330 m, MTB 7249; 29.V.1998 and 28.VI.1998, coll. and det. Z. Palice (hb. Palice).

Additional specimens examined: SLOVAK REPUBLIC: Northern Slovakia, Vysoké Tatry Mts., in the valley Hlina near the Tichá dolina valley, 1100-1250 m, on the bark and wood of *Picea abies*, on *Chaenotheca trichialis*, 14.VI.1989, coll. J. H., Z. Kyselová and A. Vězda, det. A. Vězda (PRM 889667, 889666). - Ibid.: Pod Vysokou, 1300 m, *Picea abies*, on *C. trichialis*, 8.VI.1988, coll. J. H., Z. Kyselová and A. Vězda, det. L. Tibell (PRM 889668).

Chaenothecopsis nigra TIBELL
Symb. Bot. Ups. 27(1): 132 (1987)

Ref. CR: Palice (1999b: 299).

Host lichen in CR: *Chaenotheca xyloxena.*

Other known hosts: *Chaenotheca brunneola, C. carthusiae, C. chrysocephala, C. gracillima, C. trichialis, Chaenothecopsis viridireagens, Microcalicium arenarium* and *M. conversum,* free-living algal crusts.

Ecology: In Europe *Chaenothecopsis nigra* has been found on wood of broad-leaved trees such as *Alnus, Betula, Corylus* and *Quercus,* but there are also records on *Picea* wood. In Australia and New Zealand it has been usually collected on *Eucalyptus* and *Nothofagus.*

Distribution: *Chaenothecopsis nigra* was described from New Zealand (Tibell l. c.). Several additional records are known in EUROPE: British Isles (Purvis et al. 1992: 183, Hitch 1997a: 48), Finland (Vitikainen et al. 1997: 19) and Sweden (Knutsson et al. 1999: 42). Recently it has been found by Tibell in S. AMERICA: (Palice 1999b: 299) and it has been also recorded in the Czech Republic, probably as a new species for Central Europe (Palice 1999b: 299).

Specimen examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Železná Ruda, NNR Černé a Čertovo jezero, on wood of dry *Picea* near the Černé jezero lake, associated with *Chaenotheca xyloxena*, 1010 m, MTB 6845; 22.X.1996, coll. M. Réblová, det. Z. Palice, conf. L. Tibell (hb. Palice).

Chaenothecopsis parasitaster (BAGL. et CARESTIA) D. HAWKSW.
Notes Roy. Bot. Garden Edinburgh 36: 184 (1978)

Ref. CR: None.

Sel. lit.: Hawksworth (1978: 184, fig. 2B), Purvis et al. (1992: 183).

Host lichen in CR: *Cladonia digitata.*

Other known hosts: *Cladonia deformis, C. macilenta, C. polydactyla.*

Note: According to several authors, the species may represent lichenicolous populations of *Chaenothecopsis pusilla* (Nimis 1993: 219, Clauzade et al. 1989: 42).

Ecology: *Chaenothecopsis parasitaster* is, of course, a parasitic species. Infected parts become bleached and brownish. It occurs usually on squamules of *Cladonia* spp. growing on rain protected places, i. e. vertical sides of rotten stumps and trunks of dead trees, on rotten wood, in peaty overhangs in coniferous forests or in open situations under peaty rock overhangs. It ranges from boreal forests to high-mountain regions of the Mediterranean.

Distribution: The species is known only from Europe. According to Purvis et al. (1992: 183), the species is widely distributed in temperate regions. It has been reported from Austria (Vězda 1982: 7, Türk and Wittmann 1987: 71, Hofmann et al. 1993: 851, Türk and Poelt 1993: 30, Santesson 1994b: 4, Hafellner and Türk 1995: 608, Boom et al. 1996: 633, Hofmann et al. 1998: 159), British Isles (Hawksworth 1978: 184, Hawksworth et al. 1980: 28, Purvis et al. 1992: 183), Germany (Wirth 1994: 9), Italy (Nimis 1993: 219), Norway (Holien and Tønsberg 1994: 70) and Sweden (Santesson 1993: 61).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Nová Pec, glacial cirque of the Plešné jezero lake - S margin of the lake, on an overhanging boulder, on bryophytes, on *Cladonia digitata*, 1095 m, MTB 7249; 15.VIII.1995 and 29.V.1998, coll. Z. Palice (hb. Palice). - Ibid.: 1200-1300 m, coll. Z. Palice (PRC).

Chaenothecopsis pusilla (ACH.) A. F. W. SCHMIDT

Mitt. Staatsinst. Allg. Bot. Hamburg 13: 151 (1970)

Syn.: *Calicium pusillum* FLÖRKE, Deutsche Lich.: 6 (1821)
Calicium floerkei ZAHLBR., Catal. lich. univ. 1: 598 (1922)
Embolidium italicum SACC., Michelia 1: 418 (1879)

Ref. CR: Vězda (1998: 85); as *Calicium pusillum*: Rabenhorst (1870: 20), Stein (1873: 171, 1888: 147), Novák (1888: 62, 1893: 62), Spitzner (1897: 31), Anders (1904: 84, 1922: 273), Kovář (1906: 65), Kalenský (1906: 222), Picbauer (1907: 12), Servít (1911: 59), Suza (1922: 14), Hruby (1930: 77); as *Calicium floerkei*: Suza (1925: 80); as *Embolidium italicum*: Vězda (1955: 38).

Host lichen in CR: *Chaenotheca brunneola*, free-living algal crusts.

Other known hosts: *Calicium adspersum* subsp. *australe, C. glaucellum, C. hyperelloides, C. lenticulare, C. subquercinum, C. trabinellum, C. tricolor, Calicium* sp., *Chaenotheca carthusiae, C. chrysocephala, C. citriocephala, C. deludens, C. furfuracea, C. gracillima, C. hispidula, C. trichialis, Chaenothecopsis haematopus, C. nigropedata, C. nivea, C. sanguinea, C. savonica, C. viridireagens, Microcalicium arenarium, M. conversum, Mycocalicium subtile* and *Sclerophora sanguinea.*

Ecology: *Chaenothecopsis pusilla* also often occurs on wood and bark of various trees (*Alnus, Betula, Castanea, Quercus, Picea, Pinus*) without being acompanied by other lichens and then it is probably a parasite on free-living algal colonies or it might be saprophytic.

Distribution: *Chaenothecopsis pusilla* is very widely distributed in both hemispheres (Titov and Tibell 1993: 325). It occurs in temperate and boreal regions and also in montane tropics.

EUROPE: Austria (Türk and Wittman 1984: 15, 1987: 71; Türk and Poelt 1993: 30, Obermayer 1993: 117, Boom et al. 1996: 633, Hafellner et al. 1996: 217, Hofmann et al. 1998: 159), British Isles (Purvis et al. 1992: 184), Denmark (Alstrup and Søchting 1989: 11), Estonia (Lõhmus 1998: 44, Jüriado 1999: 29), Finland (Vitikainen et al. 1997: 19), France (Bricaud and Roux 1990: 124), Germany (John 1990: 115, Wirth 1994: 9, Litterski 1998: 167), Italy (Nimis 1993: 219, Puntillo 1996: 63), Luxembourg (Diederich 1989: 93-94, Diederich et al. 1991: 17), Norway (Santesson 1993: 61, Holien and Tønsberg 1994: 70), Poland (Fałtynowicz 1993: 11), Romania (Moruzi et al. 1967: 51, as *C. floerkei*), Russia (Hermansson and Kudryatseva 1995: 77, Tibell 1997: 294), Sweden (Karström and Thor 1991: 87, Santesson 1993: 61, Rydberg 1997: 48, Fritz 1998: 12), Switzerland (Boom et al. 1993: 19), Ukraine (Nádvorník 1932: 91, as *Calicium floerkei*; Titov 1998b: 90); ASIA: Russia: Russian Far East (Hawksworth and Atienza 1994: 48, as *Calliciella parasitica*; Titov and Tibell 1993: 325), Baikal (Urbanavichene 1998: 114), Eastern Sayan (Sedelnikova 1997: 145); N. AMERICA: (Esslinger and Egan 1995: 483) and AUSTRALASIA: Australia, New Zealand (Tibell 1987: 146), New Guinea (Streimann 1990: 259).

Specimen (not seen): CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., in the Labský důl valley ("Elbgrunde"), on decorticated trunks of *Fagus*, MTB 5260; coll. B. Stein (?WRSL).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on a *Picea abies* standing trunk, on wood, on *Chaenotheca brunneola*, 310 m, MTB 5949; 5.X.1996, coll. J. H. (PRM 890777).

Chaenothecopsis pusiola (ACH.) VAIN.

Acta Soc. Fauna Fl. Fennica 57: 70 (1927)

Bas.: *Calicium pusiolum* ACH., Kungl. Vetensk. Acad. Handl. 1817: 231 (1817)
Syn.: *Calicium lignicolum* NÁDV., Preslia 18-19: 129 (1940)
Chaenothecopsis lignicola (NÁDV.) A. F. W. SCHMIDT, Mitt. Staatsinst. Allg. Bot. Hamburg 13: 153 (1970)
Coniocybe nigricans FR., Sched. Critic.: 3 (1824)

Ref. CR: Palice (1999a: 56), as *Coniocybe nigricans*: Opiz (1852), as *Calicium lignicolum*: Vězda (1955: 38).

Sel. lit.: Tibell (1987: 129-131, Fig. 93, as *Chaenothecopsis lignicola;* Titov and Tibell 1993: 325).

Host lichens in CR: *Chaenotheca brunneola, C. chrysocephala.*

Other known host: *Chaenotheca* sp.

Ecology: *C. pusiola* occurs as a parasite or parasymbiont on lichen thalli or on free-living algal colonies on lignum of conifers, or rarely, on deciduous trees.

Distribution: According to Titov and Tibell (1993: 325), this species is widely distributed in the boreal zone of the Northern Hemisphere and it was also recorded in New Zealand.

EUROPE: Austria (Türk and Wittmann 1987: 71, Mayrhofer et al. 1989: 221, Hafellner et al. 1992: 109, Türk and Poelt 1993: 30, Berger and Türk 1994: 164, as *C. lignicola*; Hofmann et al. 1998: 159), British Isles (Purvis et al. 1992: 184), Estonia (Lõhmus 1998: 44, Jüriado 1999: 29), Finland (Vitikainen et al. 1997: 19), France (Bricaud et al. 1993: 307), Germany (Wirth 1994: 9), Italy (Nimis 1993: 220, Puntillo 1996: 64), Norway (Santesson 1993: 61), Poland (Fałtynowicz 1993: 11, as *C. lignicola*), Romania (Moruzi et al. 1967: 53, as *C. pusiolum*), Russia (Hermansson and Kundryatseva 1995: 77, Tibell 1997: 294), Slovak Republic (Lisická 1998: 35), Sweden (Karström and Thor 1991: 87, Santesson 1993: 61), Ukraine (Oxner 1956: 312, as *C. lignicola*, Kondratyuk et al. 1998b: 53); ASIA: Russia: Russian Far East (Titov and Tibell 1993: 325), Baikal (Urbanavichene 1998: 114); N. AMERICA: (Esslinger and Egan 1995: 483), Canada: Alberta, U.S.A.: Michigan (Tibell 1975: 47) and AUSTRALASIA: New Zealand (Tibell 1987: 131, as *C. lignicola*; Purvis et al. 1992: 184, Titov and Tibell 1993: 325).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Železná Ruda, NNR Černé a Čertovo jezero, in glacier cirque of the Čertovo jezero lake, on wood of a coniferous stump, on *Chaenotheca brunneola*, 1200 m, MTB 6845; 27.VIII.1994, coll. Z. Palice and J. Kučera, det. Z. Palice (hb. Palice). - Šumava Mts., Distr. Klatovy, Prášily, on the SE slope of Mt. Ždanidla, on *C. chrysocephala*, 1100-1150 m, MTB 6946; 23.V.1996, coll. and det. Z. Palice (hb. Palice).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, Mt. Špičák, near the Nové Údolí settlement, on a stump of *Picea abies*, on wood, 850 m, MTB 7148; 12.III.1995, coll. Z. Palice, det. L. Tibell (hb. Palice). - Šumava Mts., Distr. Prachatice, Volary, Mt. Špičák, near the Nové Údolí settlement, Spálený luh nature reserve, on *Pinus sylvestris*, on wood, on *C. brunneola*, 800 m, MTB 7148; 21.VII.1995, coll. and det. Z. Palice (hb. Palice).

Chaenothecopsis subparoica (NYL.) TIBELL
Nova Hedwigia 60: 215 (1995)

Ref. CR: Palice (1999b: 299).

Sel. lit.: Tibell and Ryman (1995: 215-216, figs 34-40).

Host lichen in CR: ?*Haematomma ochroleucum.*

Known host: *Haematomma ochroleucum* var. *porphyrium.*

The records on *Chrysothrix chrysophthalma* and *Lepraria incana* (Jüriado et al. 1999: 29) from Estonia are very probably erroneous.

Ecology: The species is found on saxicolous thalli growing on steep rock faces in shaded and humid situations only.

Distribution: Tibell and Ryman (1995: 215) revised specimens from Finland, Italy and Sweden. The record from Finland had been originally published by Nylander (1860: 145) and later listed by Vitikainen (1991: 37), the Swedish record had been previously published by Santesson (1993: 61). Notes on these records were also reported by Kalb et al. (1995: 202).

Recently the species has been found in the Czech Republic.

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Nová Pec, glacial cirque of the Plešné jezero lake - N part, an overhanging boulder in a forest, on ?*Haematomma ochroleucum*, 1150 m, MTB 7249; 1.VI.1996, coll. Z. Palice, conf. L. Tibell (hb. Palice).

Chaenothecopsis viridireagens (NÁDV.) A. F. W. SCHMIDT
Mitt. Staatsinst. Allg. Bot. Hamburg 13: 153 (1970)

Syn.: *Calicium viridireagens* NÁDV., Preslia 18-19: 129 (1940)

Ref. CR: Palice (1999b: 300).

Sel. lit.: Schmidt (1970: 153), Tibell (1987: 164, fig. 122; 1997: 309), Titov and Tibell (1993: 328-329), Tibell (1993).

Host lichen in CR: *Chaenotheca* sp.

Known hosts: *Chaenothecopsis viridireagens* is usually parasitic on *Chaenotheca brunneola,* but occasionally also on other *Chaenotheca* species, such as *C. chrysocephala, C. deludens* and *C. stemonea.* Other associated species are *Calicium adspersum* subsp. *australe, C. trabinellum, Chaenotheca trichialis, Chaenothecopsis nigra, C. pusilla, C. savonica, C. tasmanica* and *Microcalicium conversum.*

Ecology: The species occurs on wood of standing dead trunks, rarely on their bark in shaded habitats under humid conditions in cold temperate forests. In the Czech Republic it was collected only in the Šumava Mts.

Distribution: According to Titov and Tibell (1993: 325), this species is widely distributed in both hemispheres.

EUROPE: Austria (Türk and Wittmann 1987: 71, Mayrhofer et al. 1989: 221, Berger and Türk 1993a: 177, Türk and Poelt 1993: 31), British Isles (Purvis et al. 1992: 184), Estonia (Lõhmus 1998: 44, Jüriado et al. 1999: 30), Finland (Vitikainen et al. 1997: 19), France (Nádvorník 1940: 129), Germany (Türk and Wunder 1991: 84, Wirth 1994: 9), Italy (Nimis 1993: 220), Norway (Santesson 1993: 61), Poland (Fałtynowicz 1993: 11), Romania, Slovak Republic (Nádvorník 1940: 129), Spain (Tibell 1997: 294), Sweden (Santesson 1993: 61, Tibell 1997: 294), Switzerland (Boom et al. 1993: 19, as *Chaenothecopsis* cf. *viridireagens*); Ukraine (Nádvorník 1940: 129, Oxner 1956: 312, both as *Calicium viridireagens*; Kondratyuk et al. 1998b: 54, Titov 1998b: 91, Kondratyuk 1999: 34); ASIA: Russia: Khabarovsk (Titov and Tibell 1993: 329), Baikal (Urbanavichene 1998: 114); N. AMERICA: (Esslinger and Egan 1995: 483), Canada: British Columbia (Tibell 1975: 45), U.S.A.: Michigan (Tibell 1975: 49) and AUSTRALASIA: Australia, New Zealand (Tibell 1987: 164).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Železná Ruda, NNR Černé a Čertovo jezero, glacial cirque of the Černé jezero lake - S part, bark of *Picea*, 1100-1200 m, MTB 6845; 12.X.1995, coll. Z. Palice (hb. Palice).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, glacial cirque of the Plešné jezero lake - central part (not far from the lake), on a decaying stump, on thallus and stalks of *Chaenotheca* sp., 1100 m, MTB 7249; 9.VII.1998, coll. Z. Palice and C. Printzen (hb. Palice, pycnidia only). - Šumava Mts., Distr. Prachatice, Volary, wet pine forest near the railway station Černý Kříž, on vertical side of a dry stump, 740 m, MTB 7149; 30.IV.1995, coll. and det. Z. Palice (hb. Palice).

Clypeococcum D. HAWKSW.
Bot. J. Linn. Soc. 75: 196 (1977)

The genus *Clypeococcum* belongs to the *Dacampiaceae* family. It is primarily characterized by clypeate ascomata. It comprises six species currently, however, an additional probably exists. Two species were found in the Czech Republic.

Clypeococcum cladonema (WEDD.) D. HAWKSW.
Bot. J. Linn. Soc. 75: 197 (1977)

Ref. CR: None.

Sel. lit.: Hawksworth (1977a: 197-199), Santesson (1960: 504), Hafellner (1995a: 429).

Host lichen in CR: *Neofuscelia verruculifera.*

Other known hosts: *Neofuscelia pulla, Neofuscelia* sp.

Also reported on *Cetrelia olivetorum*, but conspecifity of the fungus should be examined.

Observation: Ascomata were found in black necrotic spots on the thallus.

Distribution: So far, this rare species is known from several localities in Northern and Western Europe and in North Africa only.

EUROPE: British Isles (Hawksworth 1977a: 199, 1982a: 378, 1983: 6, Navarro-Ros. et al. 1994: 425), France (Hawksworth 1977a: 197), Norway (Santesson (1960: 504, Santesson 1993: 70) and N. AFRICA: Spain: Canary Islands (Hafellner 1995a: 429).

The first record for Central Europe!

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, NNR Týřov, below the Týřov castle above the Berounka River, on rocks, on rhyolite, on *Neofuscelia verruculifera*, 290 m, MTB 6048; 8.VIII.1999, coll. J. K. and P. K. (PRM 759351).

Clypeococcum hypocenomycis D. HAWKSW.
Notes Roy. Bot. Garden Edinburgh 38: 167 (1980)

Ref. CR: None.

Sel. lit.: Hawksworth (1980: 167-168, fig. 2), Triebel (1989: 65-67).

Host lichen in CR: *Hypocenomyce scalaris*.

Known host: Only known on *Hypocenomyce scalaris*.

Ecology: *Clypeococcum hypocenomycis* is a parasitic fungus, found as dark grey host squamules which may take a large area of tree trunks or stumps if heavily infected. It is easily recognizable in the field. The fungus is distributed from lowlands to montane regions where it occurs preferably in shaded sites under wet conditions.

Distribution: EUROPE: Austria (Hawksworth 1980: 167, Vězda 1983: 7, Triebel 1989: 67, Berger and Türk 1993a: 179, Türk and Poelt 1993: 38, Hafellner and Mauer 1994: 120, Navarro-Rosines et al. 1994: 425, Hafellner and Türk 1995: 608), British Isles (Hawksworth 1980a: 167, Hawksworth et al. 1980: 31, Hawksworth 1983: 6, Triebel 1989: 65), Denmark (Vězda 1983: 7, Triebel 1989: 66), Germany (Diederich 1986: 7, Triebel 1989: 67, John 1990: 128), France: Corsica (Hafellner 1994a: 223), Luxembourg (Diederich 1986: 7, 1989: 97, Triebel 1989: 66, John 1990: 128, Santesson 1994b: 12), Sweden (Santesson 1993: 70, 1994a: 4), Spain (Alvarez and Carballal 1992: 362) and N. AMERICA: (Egan 1991: 396, Esslinger and Egan 1995: 486), Canada: British Columbia (Goward and Thor 1992: 34, Alstrup and Cole 1998: 224), U.S.A.: Minnesota (Triebel 1989: 67, Triebel et al. 1991: 271).

Specimens examined (all on *Hypocenomyce scalaris*): CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, in the valley of the Úpořský potok stream, on steep slope on the bark of *Quercus robur* trunk, 285 m, MTB 6048; 25.V.1997, coll. J. K. and P. K. (PRM 891205). - Distr. Rakovník, Podbořánky, in a forest near a peat bog, on the bark of *Picea abies*, 520 m, MTB 5946; 24.VII.1997, coll. J. K. and P. K. (PRM 891206). - Distr. Rakovník, Chrášťany, in the forest Na borech, in a pine flood plain forest, on a standing decorticated trunk, 400 m, MTB 5848; 1997, coll. J. K. (PRM 758614). - Distr. Kolín, Louňovice, NNR Voděradské bučiny, on a stump, 400 m, MTB 6054; VII.1996, coll. I. Kazdová, det. J. H. (PRM 892176). - Distr. Příbram, Brdy Mts., in the Kobylí hlava saddle, ca. 4 km N of Mt. Třemšín, on a stump, 760 m, MTB 6448; 28.V.1998, coll. J. K. (PRM 892099): - Distr. Příbram, Brdy Mts., Mt. Třemšín, on *Betula verrucosa*, 760 m, MTB 6448; 28.V.1998, coll. J. K. and Š. Bayerová (PRM 758590, also present: *Lichenoconium erodens* on *Lecanora conizaeoides*). - Distr. Příbram, Mt. Hřebenec, Hřebenec nature reserve, on *Betula verrucosa*, 755 m, MTB 6448; 28.V.1998, coll. J. K. and Š. Bayerová (PRM 758615).

Cornutispora PIROZ.
Mycologia 65: 763 (1973)

This genus belongs to the coelomycetous fungi. So far, four species have been described. Three are obligately lichenicolous fungi. Two species were recently found in the Czech Republic. One collection with different form of conidia in discussed below as *Cornutispora* sp.

Cornutispora lichenicola D. HAWKSW. et B. SUTTON
Trans. Br. mycol. Soc. 67: 51 (1976)
Pl. 2, fig. 2.

Ref. CR: None.

Sel. lit.: Hawksworth (1976: 51-53, 1981a: 14-15) and Sutton (1980: 90).

Host lichens in CR: *Hypocenomyce scalaris, Lecanora conizaeoides, Parmelia saxatilis, Parmeliopsis ambigua, Pertusaria leioplaca, Platismatia glauca, Rinodina* sp.

Other known hosts: *Cetraria sepincola, C. digitata, C. pyxidata, Flavoparmelia caperata, F. soredians, Haematomma africanum, H. collatum, H. persoonii, H. stevensiae, Hypogymnia physodes, Lecanora cadubriae, Lecanora* aff. *hybocarpa, L. varia, Lobaria pulmonaria, Melanelia fuliginosa, M. olivacea, Menegazzia terebrata, Ochrolechia pallescens, O. tartarea, Parmelia sulcata, Parmotrema perlatum, Pertusaria pertusa, Phlyctis agelaea, Pseudevernia furfuracea, Punctelia borreri, Rhizoplaca chrysoleuca, Rinodina* sp.
Parmelia saxatilis, Parmeliopsis ambigua and *Pertusaria leioplaca* are the new hosts for this species.

Observation: *Cornutispora lichenicola* is a strong parasite. Affected parts of host thalli are usually bleached to pale orange. This typical symptom of infection has been observed in all hosts from studied area, except for *Parmelia saxatilis*. A mixed infection together with *Lichenoconium erodens* has been observed on *Hypocenomyce scalaris, Lecanora conizaeoides* and *Pertusaria leioplaca*, where both of these lichenicolous fungi evoke similar symptoms of infection. Affected parts of thalli are nearly killed. *Cornutispora lichenicola* may has also been found in mixed infections with *Lichenoconium lecanorae, L. usneae* and *Endophragmiella hughesii* (Hawksworth 1981: 14, Kalb et al. 1995: 203).

Distribution: The species is widely distributed in both hemispheres.

EUROPE: Austria (Hawksworth 1981: 14, Diederich 1986: 19, Hafellner and Maurer 1994: 121, Hafellner and Türk 1995: 608, Hafellner 1996b: 74), Belgium (Diederich 1986: 19, Boom et al. 1996: 85), British Isles (Hawksworth 1976: 51, 1981: 14; Diederich 1986: 19, Hitch 1995: 38), France (Bricaud et al. 1992: 82, Etayo and Diederich 1996b: 98), Italy (Hawksworth 1981: 15, Diederich 1986: 19), Luxembourg (Diederich 1989: 239, John 1990: 133, Boom et al. 1996: 85), Norway (Santesson 1993: 73, Hafellner 1993: 753), Slovenia (Hafellner 1996b: 74, Mayrhofer et al. 1996: 124), Spain (Diederich 1986: 19, Alvarez and Carballal 1992: 362, Calatayud et al. 1995: 370, Etayo and Diederich 1996b: 98), Sweden (Thor 1992: 23, Santesson 1993: 73), Switzerland (Hawksworth 1981: 15, Diederich 1986: 19); N. AFRICA: Spain: Canary Islands (Hafellner 1995a: 430, 1995c: 29); AFRICA: Mauritius (Kalb et al. 1995: 204); N. AMERICA: U.S.A (Kalb et al. 1995: 204, Esslinger 1998) and AUSTRALASIA: Australia (Kalb et al. 1995: 204).

For some other references see also Kalb et al. (1995: 203-204) and Martínez and Hafellner (1998: 275).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Bukov, on a slope of Liščí skály hill, on *Hypocenomyce scalaris* and *Lecanora conizaeoides*, 420 m, MTB 5847; 22.II.1997, coll. J. H. and P. K. (PRM 890784). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on a slope of Šance hill, on the bark of *Fagus sylvatica*, on *Platismatia glauca*, 390 m, MTB 5949; 30.V.1998, coll. J. K. and P. K. (PRM 892516). - Brdy Mts., Distr. Příbram, on a slope of Mt. Třemšín, on conglomerate rock, on *Parmelia saxatilis*, 800 m, MTB 6448; 24.IX.1998, coll. J. K. (PRM 892525). - Distr. Příbram, Brdy Mts., in saddle Kobylí hlava, ca. 4 km N of Mt. Třemšín, on a stump, on *Parmeliopsis ambigua*, 760 m, MTB 6448; 28.V.1998, coll. J. K. (PRM 758547).

Western Moravia, Distr. Jihlava, below Špičák hill, NNR Velký Špičák, on the bark of *Fraxinus excelsior*, on *Pertusaria leioplaca*, 620 m, MTB 6659; 16.X.1996, coll. J. H. (PRM 758282, together with *Lichenoconium erodens*).

Cornutispora triangularis DIEDERICH et ETAYO

Flechten Follmann: 209 (1995)
Pl. 2, fig. 3

Ref. CR: None.

Host lichen in CR: *Pertusaria coronata*, as a new host.

Known host: *Pertusaria pertusa.*

Observations: The species is well characterized by single, erumpent, globose pycnidia, of 50-85 µm in diam. in our specimen, honey-orange to almost black when dry, dispersed to more close together on the host thallus; by strange, conspicuous, hyaline, triangular conidia, of 12-17 µm, produced in large quantity in pycnidia. Pycnidia of this fungus occurred especially on parts of the thallus damaged by snails.

Etayo and Diederich (1995: 209) tried to recognize the type of conidiogenesis, but despite their study they failed to observe conidiogenous cells. Unfortunately, we did not find them either.

Distribution: Until now this coelomycete was known only from the western French and the Spanish Pyrenees (Etayo and Diederich 1995: 209), Luxembourg (Boom et al. 1996: 85) and Denmark (Alstrup and Svane 1998: 24).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on the tributary bank of the V haltýřích small lake, on the bark of *Acer pseudoplatanus*, on *Pertusaria coronata*, 380 m, MTB 5949; 30.V.1998, coll. J. K. and P. K. (PRM 892178). - Ibid.: 27.VI.1998 (PRM 892184).

Cornutispora sp.

Ref. CR: Kocourková (1999: 183).

Host lichen in CR: *Xanthoparmelia conspersa.*

Observations: The fungus found on *Xanthoparmelia conspersa* strongly resembles *Cornutispora lichenicola* in the size and form of conidia. However, untypically more than three appendages are developed in most of the conidia. These conidia are deformed in the form and appendages occurred without any regularity or connection to a definite area of the conidium surface. Up to five appendages per a conidium are developed.

It is necessary to study substantial amount of material in order to specify whether the finding is an abnormality of *Cornutispora lichenicola* only or whether it represents a new species.

Specimen examined: CZECH REPUBLIC: Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov basin, on the S exposed slope near the "Chvalatická zátoka" creek, on quartzite boulders, on *Xanthoparmelia conspersa*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 758527, mixed with *Abrothallus caerulescens, Lichenostigma cosmopolites, Sclerococcum* sp. and *Weddellomyces xanthoparmeliae*).

Dactylospora KÖRB.

Syst. Lich. Germ.: 271 (1855)

The genus *Dactylospora* comprises lichenicolous, hepaticolous and lignicolous fungi. Two celled taxa of the genus were revised in detail by Hafellner (1979). Several additional species were described by Triebel (1989) on members of the *Lecideaceae* family.

Dactylospora athallina (MÜLL. ARG.) HAFELLNER

Nova Hedwigia, Beih. 62: 99 (1979)

Bas.: *Buellia athallina* MÜLL. ARG., Mem. Soc. Phys. Hist. Nat Genève 16: 404 (1862)
Syn.: *Karschia athallina* (MÜLL. ARG.) VOUAUX, Bull. Soc. mycol. France 29: 450 (1913)

Ref. CR: As *Buellia athallina*: Servít (1910: 79), Suza (1920: 221, 1925: 140); as *Karschia athallina*: Suza (1933b: 506).

Sel. lit.: Hafellner (1979: 99-103, fig. 12), Ihlen (1998: 43-44).

Host lichen in CR: *Baeomyces rufus*, ? *Dibaeis baeomyces.*

Servít (l.c.) published record of *Buellia athallina* on *Dibaeis baeomyces* (as *Baeomyces roseus*), however, this fungus now known as *Dactylospora athallina* is probably restricted to *Baeomyces rufus* only. Unfortunately, we failed to locate the Servít's specimen in PRM and PRC herbarium.

Other known host: Reported on *Baeomyces rufus* only.

Distribution: According to Hafellner (1979: 102), the species is known from EUROPE: France, Germany, Great Britain, Hungary, Ireland, Serbia, Slovak Republic, Switzerland and from the N. AMERICA: U.S.A.: Minnesota.

Other reports: EUROPE: Austria (Türk and Wittman 1987: 78, Türk and Poelt 1993: 42, Hafellner and Türk 1995: 609, Hafellner 1996b: 75), British Isles (Hitch 1996b: 40), Italy (Puntillo 1996: 79), Poland (Fałtynowicz 1993: 13), Norway (Santesson 1993: 75, Ihlen 1998: 44), Spain (Calatayud and Barreno 1994: 29), Sweden (Muhr 1987: 65, Thor 1992: 23, Santesson 1993: 75), Ukraine (Kondratyuk et al. 1998b: 65, Kondratyuk 1999: 35) and N. AMERICA: (Keissler 1933: 382, as *Karschia athallina*; Esslinger and Egan 1995: 488).

So far, *Dactylospora athallina* has been known in the Czech Republic in Moravia only, where it has been found in lowlands.

Specimens examined: CZECH REPUBLIC: Western Moravia, Distr. Třebíč, in the valley between Vladislav and Střížov, on thallus of *Baeomyces rufus* (as *B. byssoides*), ca. 400 m, MTB 6761; 4.IX.1914, coll. J. Suza, det. K. Keissler (PRM 630328, 630330, as *Buellia athallina*). - Distr. Třebíč, near Třebíč, in the Libušino údolí valley, on *Baeomyces rufus* (as *B. byssoides*), XII.1912, coll. J. Suza (PRM 630327, as *B. athallina*). - Ibid.: 14.VII.1916, coll. J. Suza (PRM 630326, as *B. athallina*). - Distr. Třebíč, Heraltice, in the forest Heraltický les, on a ditch margin of a forest path, on soil, on *B. rufus*, MTB 6760; 17.VIII.1919, coll. J. Suza (PRM 630331, as *B. athallina*).

Southern Moravia, the city of Brno, near Mokrá Hora, on a ditch margin of a forest path on *B. rufus*, 270 m, MTB 6765; 25.XII.1983, coll. A. Vězda (BRA 345, as *Karschia athallina*).

Dactylospora purpurascens TRIEBEL
Bibl. Lichenol. 35: 214 (1989)

Ref. CR: Triebel (1989: 219).

Sel. lit.: Triebel (1989: 214-219, fig. 34).

Host lichen in CR: *Porpidia glaucophaea.*

Other known hosts: *Amygdalaria consentiens, A. elegantior, A. panaeola, A. pelobotryon, Pilophorus dovrensis, P. strumaticus.*

According to Hafellner's information (pers. com.), Santesson's report of *Dactylospora athallina* on *Porpidia glaucophaea* (Santesson 1993: 75) refers to *D. purpurascens. Porpidia glaucophaea* was also reported by Hafellner (1996b: 75) as a host for *Dactylospora australis* TRIEBEL.

Distribution: EUROPE: Austria (Triebel 1989: 217, Türk and Poelt 1993: 42), British Isles (Triebel 1989: 217, Hitch 1997b: 34, Chambers 1999: 36), Denmark: Faeroe Islands (Alstrup et al. 1994: 89), Germany, Iceland, Italy (Triebel 1989: 217), Poland (Triebel 1989: 217, Fałtynowicz 1993: 14), Norway (Triebel 1989: 217, Hafellner 1993: 753, Santesson 1993: 75, as *D. athallina*, 1993: 76), Norway: Spitsbergen (Triebel 1989: 217), Sweden (Triebel 1989: 217, Santesson 1993: 76); ASIA: Russia: (Triebel 1989: 217), Putorana Plateau (Zhurbenko 1996: 225, Zhurbenko and Hafellner 1999: 74), Taymyr Peninsula (Zhurbenko and Santesson 1996: 153, Zhurbenko 1998: 156) and N. AMERICA: (Egan 1991: 396, Esslinger and Egan 1995: 488), Canada, Greenland (Triebel 1989: 217).

Specimen (not seen): CZECH REPUBLIC: Northern Bohemia, Jizerské hory Mts., Distr. Jablonec nad Nisou, Mt. Bukovec, on thallus *Porpidia glaucophaea*, ca. 900 m, MTB 5158; VIII.1960, coll. A. Vězda, det. M. Triebel (M).

Dactylospora rimulicola (MÜLL. ARG.) HAFELLNER
Nova Hedwigia, Beih. 62: 126 (1979)

Syn.: *Karschia rimulicola* (MÜLL. ARG.) ARNOLD, Flora 57: 103 (1874)

Ref. CR: Hafellner (1979: 127).

Sel. lit.: Hafellner (1979: 126-127, fig. 24).

Host lichen in CR: *Lecanora serpentinicola.*

Other known hosts: *Amygdalaria panaeola, Pertusa-ria* sp., *Pleopsidium chlorophanum.*

Distribution: EUROPE: Denmark: Faeroe Islands (Alstrup et al. 1994: 89), Greece (Zervakis et al. 1999: 490), Italy: Sardinia (Nimis and Poelt 1987: 94), Norway, Sweden (Alstrup 1991: 65) and Switzerland (Keissler 1933: 389, as *Karschia rimulicola*, Hafellner 1979: 127).

Specimen examined: CZECH REPUBLIC: Southern Moravia, Mohelno nature reserve, on a serpentine rock, on *Lecanora serpentinicola*, 300 m, MTB 6862; 12.IV.1964, coll. A. Vězda, det. J. Hafellner (hb. Vězda).

Dactylospora saxatilis (SCHAER.) HAFELLNER var. *saxatilis*
Nova Hedwigia, Beih. 62: 129 (1979)
Pl. 2, figs 4, 5

Syn.: *Buellia saxatilis* (SCHAER.) KÖRB., Syst. Lich. Germ.: 228 (1855)

Ref. CR: All as *Buellia saxatilis*: Migula (1913: 904, 1929: 70), Servít (1910: 46, 1930: 46), Lindau (1913: 221), Suza (1925: 67, 141).

Sel. lit.: Hafellner (1979: 129).

Host lichens in CR: *Pertusaria aspergilla, Pertusaria* sp.

Other known hosts: Saxicolous *Pertusaria* and *Ochrolechia* spp.: *Pertusaria arizonica, P. excludens, P. flavicans, Ochrolechia* sp.

Observation: In the Czech specimen on *Pertusaria* sp., the spores of 8-11 x 4.5-6.5 µm in mature asci are substantially smaller than the approximate dimensions given by Hafellner (1979: 131) for *D. saxatilis* var. *saxatilis*. The hymenium is much higher than usually, up to 100 µm. The reactions of the host thallus are Pd- and K+ slightly brownish yellow. Roccellic acid and an unknown component were found by testing with thin-layer chromatography in the thallus.

Note: *Dactylospora pertusariicola* (WILLEY ex TUCK.) HAFELLNER, which also grows on *Pertusaria aspergilla,* is distinguished from *D. saxatilis* by having polysporic asci.

Distribution: The species is widely distributed in EUROPE: Austria (Hafellner 1979: 133, Türk and Wittmann 1987: 79, Obermayer 1993: 143, Hofmann et al. 1993: 853, Hafellner and Türk 1995: 610, Hofmann et al. 1998: 159), Bulgaria (Hafellner 1979: 133), Great Britain (Hafellner 1979: 133, Hitch 1997a: 49), Finland (Vitikainen et al. 1997: 24), Germany (John 1990: 134, Wirth 1994: 11), France, Hungary, Italy (Hafellner 1979: 133), Luxembourg (Diederich et al. 1991: 19), Macedonia, Norway (Hafellner 1979: 133), Poland (Fałtynowicz 1993: 14), Slovak Republic (Vězda 1963: 156, Hafellner 1979: 133), Spain, Sweden (Hafellner 1979: 133), Switzerland (Hafellner 1979: 133, Boom et al. 1993: 20); Ukraine (Kondratyuk et al. 1998b: 66, Kondratyuk 1999: 35); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 225, Zhurbenko and Santesson 1996: 153) and it has been also found in N. AFRICA (Triebel et al. 1991: 273) and N. AMERICA: (Esslinger and Egan 1995: 488), Greenland (Alstrup and Hawksworth 1990: 26), U.S.A.: Alaska (Hafellner 1979: 133, Triebel et al. 1991: 273), Arizona (Triebel et al. 1991: 273).

Specimen (not seen): CZECH REPUBLIC: Central Bohemia, the city of Praha, Motol, w. host, MTB 5952; w. date, coll. M. Servít (PRM - not found).

Specimens examined: CZECH REPUBLIC: Central Bohemia, the city of Praha, Jinonice, on diabasic rocks at the Kační quarry-margin, on *Pertusaria aspergilla* (th.), ca. 300 m, MTB 5952; 8.IX.1994, coll. J. H. (PRM 889659). - Ibid.: 2.XI.1999 (PRM 758699). - Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *Pertusaria* sp., 340 m, MTB 6050; 21.III.1997, coll. J. H. (PRM 758292).

Additional specimens examined: SLOVAK REPUBLIC: Vysoké Tatry Mts., in the defile of Mt. Skalné vráta, on *Pertusaria flavicans*, 1500 m, VIII.1960, coll. A. Vězda, rev. J. Hafellner (hb. Vězda, as *Buellia saxatilis* "in thallo *Aspiciliae* spec. vigens"). - Ibid.: 1600 m, 28.VIII.1985, coll. E. Farkas, Z. Kyselová and A. Vězda (hb. Vězda).

Dactylospora urceolata (TH. FR.) ARNOLD
Flora 57: 173, Tab. 2, figs 1, 2 (1874)

Bas.: *Buellia urceolata* TH. FR., Lichenes Arctoi: 233 (1860)

Ref. CR: None.

Sel. lit.: Triebel (1989: 226).

Host lichen in CR: *Protothelenella sphinctrinoides.*

Other known hosts: The fungus is reported on a number of other hosts (for example *Caloplaca ammiospila, Gyalecta geoica*), but taxonomy of this group remains unresolved.

Distribution: EUROPE: Austria (Mayrhofer et al. 1989: 224, Türk and Wittmann 1987: 79, Hofmann et al. 1993: 853, Obermayer 1993: 143, Türk and Poelt 1993: 42, Hafellner and Türk 1995: 610, Boom et al. 1996: 634, Hofmann et al. 1998: 159), British Isles (Hawksworth et al. 1980: 35), Finland (Vitikainen 1991: 39, Vitikainen et al. 1997: 24), Norway (Triebel 1989: 226, Santesson 1993: 76), Norway: Spitsbergen (Hafellner 1982b: 31), Romania (Moruzi et al. 1967: 316, as *Buellia urceolata*), Sweden (Alstrup 1991: 65, Santesson 1993: 76) and N. AMERICA: (Esslinger and Egan 1995: 488), Greenland (Alstrup and Hawksworth 1990: 26).

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice near the Plešné jezero glacial lake, on thallus of *Protothelenella sphinctrinoides*, 1150-1250 m, MTB 7249; 15.VIII.1995, coll. Z. Palice, det. J. K. (hb. Palice).

Didymellopsis (SACC.) CLEM. et SHEAR
Gen. Fungi: 66, 265 (1931)

The delimination of the genus *Didymellopsis* was made by Grube and Hafellner (1990) together with the new genus *Zwackhiomyces* during the revision of the heterogeneous genus *Didymella* s. l. The *Didymellopsis* genus belongs to Dothideales incertae sedis.

Didymellopsis collematum (J. STEINER) GRUBE et HAFELLNER
Nova Hedwigia 51: 297 (1990)

Ref. CR: None.

Sel. lit.: Grube and Hafellner (1990: 297-300, fig. 1).

Host lichen in CR: *Collema auriforme.*

Other known hosts: *Collema glebulentum, C. polycarpon.*

Distribution: EUROPE: Great Britain, Greece (Grube and Hafellner 1990: 297) and ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 225, Zhurbenko and Santesson 1996: 153).

New for Central Europe!

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, near the village of Trubín, on the S the slope of Trubínský vrch hill, on diabasic rocks, on *Collema auriforme* (th.), 340 m, MTB 6050; 21.III.1997, coll. J. H. (PRM 891168). - The city of Praha, Prokopské údolí valley, W of the old swimming pool Holyňské koupaliště, on the S slope of calcareous rocks, 280 m, on *Collema auriforme* (th.), MTB 5952; 10.IV.1988, coll. J. H. (PRM 758619).

Endococcus NYL.
Mém. Soc. Sci. Nat. Cherbourg 3: 193 (1855)

Until recently, the genus *Endococcus* had been placed in the order Dothideales without classification to any family (as incertae sedis) (David and Etayo 1995, Hawksworth 1979, Hawksworth et al. 1995 and Triebel 1989). Systematic position of the genus has been clarified (Triebel 1993) after the concept of the Verrucariales was extended by Matzer and Hafellner (1990). This order comprises now also genera of lichenicolous fungi with more or less persistent interascal filaments, such as *Adelococcus* THEISS. et SYD. and *Sagediopsis* (SACC.) ex VAIN., *Merismatium* ZOPF, *Muellerella* HEPP ex MÜLL. ARG., *Norrlinia* THEISS. et SYD., *Phaeospora* HEPP ex STEIN and *Endococcus* (Eriksson and Hawksworth 1985, 1990, 1991, Matzer 1993b, Matzer and Hafellner 1990, Triebel 1989). Acceptance of *Lauderlindsaya* J. C. DAVID et D. HAWKSW. (1989) is still controversial (Aptroot 1989, Diederich et al. 1991, Diederich and Sérusiaux 1993). *Endococcus, Merismatium, Muellerella, Norrlinia, Phaeospora* and *Lauderlindsaya* were placed by Triebel (1993) in the *Verrucariaceae* family on the basis of their ascomatal and hymenial characters. Triebel established a new family *Adelococcaceae* for *Adelococcus* and *Sagediopsis.*

After the establishment of the genus *Endococcus* by Nylander in 1855 on the basis of the species *Endococcus rugulosus*, many new species and taxa of lower rank have been described. Many of the species currently belonging to the genus *Endococcus* were originally described in the genera *Discothecium* ZOPF and *Tichothecium* auct. At the present time, many other species described in the past in all these genera are referred to *Muellerella, Polycoccum, Sphaerellothecium* ZOPF or *Stigmidium.* The number of currently recognized species within the genus ranges from 17 to 21, including those recently described or newly included there.

The genus *Endococcus,* comprising obligatorily lichen-inhabiting (lichenicolous) fungi, was studied by Hawksworth (1979b) and Triebel (1989). Hawksworth (1979b) elaborated the concept of the two separate genera, *Endococcus* and *Muellerella,* distinguished on the basis of the asci structure, for the fungi formerly referred to as *Tichothecium* FLOT. Consequently, he regarded those members of the genus *Discothecium* ZOPF, which are characterized by both lack of interascal filaments and presence of 4-8 spored bitunicate asci, as synonymous to *Endococcus.* Some fungi referred to *Discothecium* and having interascal filaments were formerly transferred to *Polycoccum* SAUT. ex KÖRB. by Vězda (1969). Hawksworth as well as Vouaux (1913) and Keissler (1930) still considered the genus *Sphaerellothecium* as synonymous to *Endococcus*. Recently, the genus *Sphaerellothecium* has been regarded as a separate genus in the Dothideales (Triebel 1989, Roux and Triebel 1994). Hawksworth (l.c.) accepted twelve species in *Endococcus,* for which he provided a preliminary key. Two species were later transferred to other genera. *Endococcus vermicularius* (LINDS.) D. HAWKSW. was recognized by Hawksworth as a species belonging to *Polycoccum* (Hawksworth 1985) and the former combination of *Endococcus araneosus* (REHM ex ARNOLD) H. OLIVIER to *Sphaerellothecium* presented by Zopf was re-established again after the genus *Sphaerellothecium* had been accepted by Triebel (1989).

Triebel dealt with a taxonomic revision of lecideicolous fungi (fungi growing on lichens of the family *Lecideaceae*) in detail, where she accepted three species of the genus *Endococcus*, i. e. *E. perpusillus* NYL., *E. propinquus* (KÖRB.) D. HAWKSW. and *E. rugulosus* NYL. Two of those occur on hosts of that family. However, the hosts, which she accepted

for the particular species of *Endococcus*, are very heterogeneous and include many unrelated taxa. During our study we found out that the species of *Endococcus* occurring on them are so variable, that a more detailed study is needed to specify a more homogenous delimitation of particular species. In addition, it is not unusual that more than one *Endococcus* species may occur on the same host.

During the past years there has been a greater use of hosts' relationship in delimitation of the lichenicolous fungi species. The aim is to establish a more natural system of fungi on the basis of co-evolution of lichen species and their fungal inhabitants. This effort for achieving a more natural and consequently narrower delimitation of the *Endococcus* species is apparent in several more recent publications of Hafellner (Hafellner 1994b, 1996, Hafellner and Türk 1995) and in the most recent paper of Sérusiaux et al. (1999), as well.

Nevertheless, the genus is still heterogeneous. Further synonyms are likely to be found and there probably exist also a number of undescribed taxa. Additionally, there are several unclear taxa related to *Endococcus*.

Endococcus fusiger TH. FR. et ALMQ.

Bot. Not.: 109 (1867)

Pl. 3, figs 1, 2

Ref. CR: Vězda [1963: 154, as *Tichothecium perpusillum* (NYL.) ARNOLD].

Host lichens in CR: *Rhizocarpon disporum, R. lavatum.*

Other known hosts: *Rhizocarpon badioatrum, R. distinctum, R. geminatum.*

Note: *Endococcus perpusillus* and *E. fusiger* have not been usually kept separate and *E. perpusillus* s. l. has been treated on many unrelated genera, including *Rhizocarpon* species with brown and yellow thalli as well. We did not study any specimen of *Endococcus* on *Schaereria*, but considering the type diagnosis and conclusions of Hafellner (1999: 516-517), *Endococcus perpusillus* NYL. s. str. is probably restricted to *Schaereria* species or to the type host *Schaereria fuscocinerea* only (Sérusiaux et al. 1999: 25, as *S. tenebrosa*). The type host of *E. fusiger* is *Rhizocarpon geminatum.*

Observation: *Endococcus fusiger* was identified on the thalli of two other than "yellow" species of the genus *Rhizocarpon* in the Czech Republic. The ascomata in our specimens arise singly from the margin of areoles or apothecia of its hosts or they grow on the surface. The wall in the upper part of the ascoma is dimidiate, consisting of two layers; the external one, developed around the ostiolum or covering upper third of ascoma, which is brown to black and the inner part which is pale brown, and it is developed around the whole ascoma. Spores are thin-walled, fusiform, pale brown in maturity, never with gold-brown tinge, with a thin septum. Spores measured were 13.5-18 x 5.5-7 µm in diam., generally 16 x 6 µm (50 spores measured). In the studied specimen from GZU (no. 5655, as *E. rugulosus*) the spores are much larger, 19-20 x 6-7 µm, however the fungus belongs here doubtlessly.

No swellings of areoles are present in our hosts which may often be seen in the infections caused by *E. macrosporus* on the yellow members of *Rhizocarpon* where the ascomata are arising in groups from the host areoles centre and are semi-immersed or immersed. However, *E. macrosporus* is very similar to *E. fusiger* by its thin-walled, pale brown ascospores, which never show a gold-brown tinge. Its spores are distinguished by the larger size, of 16-20(-22) x 5.5-7(-8) µm.

Endococcus exerrans NYL. was mentioned as an adiditional species by Sérusiaux et al. (1999: 25) which may occur on the same host, viz. *R. distinctum*, in addition to *R. lecanorinum*, *R. viridiatrum* and *R. geographicum* subsp. *lindsayanum*. According to these authors, it is distinguished from *E. fusiger* by narrower spores, of 13-16 x 4-5 µm in diam.

However, also *Endococcus hygrophilus* ARNOLD and *Endococcus brachysporus* (ZOPF) BRAND et DIEDERICH were described on the species of *Rhizocarpon* of the subgen. *Phaeothallus*. The latter is supposed by Sérusiaux et al. (1999: 24-25) to grow in reality on *Porpidia speirea* instead of a superficially similar *Rhizocarpon petraeum* [according to Triebel (1989), the type specimen is probably lost]. The type host of *Endococcus hygrophilus* is *Rhizocarpon badioatrum*. According to type diagnosis, ascomata in the type specimen are superficial; hamathecium without "paraphyses", I+ wine red; ascospores hyaline, 1-septate, 15-18 x 5-6 µm in diam. Triebel (1989: 92) included *Endococcus hygrophilus* in the synonymy of *Endococcus perpusillus* NYL. and designated a lectotype based on the Arnold's specimen. The type drawings of Arnold (1871) really seems to belong to an *Endococcus* species, nevertheless, Santesson (1993: 214) transferred this fungus in *Stigmidium* as *Stigmidium hygrophilum* (ARNOLD) R. SANT. and added unrelated hosts *Porpidia melinodes* and *Porpidia* sp. In addition, Alstrup and Olech (1996: 751) later reported *S. hygrophilum* from *Ionaspis lacustris* (see also notes under "*Arthopyrenia*" *lomnitzensis*). Characters of this species should be proved and compared with those of *E. exerrans* and *E. fusiger* and collection of Alstrup and Olech with "*Arthopyrenia*" *lomnitzensis*.

There are also several specimens of *Endococcus* in our collection, which also grow on *Rhizocarpon* sect. *Catocarpus*, however these are distinguished by dark brown, thick-walled ascospores, of the size 13-16 x 6-7.5 µm, which we regarded until now as *E. rugulosus*. In case the type specimen of *E. rugulosus* is really characterized by verruculose spores, then *Endococcus* in our specimens is, in fact, an undescribed species (compare Sérusiaux et al. 1999: 29).

Distribution: Currently impossible to provide.

On brown and grey *Rhizocarpon* spp., Triebel (1989: 97-98) listed specimens of *Endococcus* with thin-walled spores (as *Endococcus perpusillus*) from the following countries: Austria, Denmark, Finland, Germany and Italy. Considering the distinguishing characters presented in Table 2 by Sérusiaux et al. (1999: 26), the Swedish record of *E. perpusillus* (Santesson 1994a: 5) belongs, on the basis of examined exsiccate specimens no. 163 (hb. Vězda, GZU), to the fungus *E. exerrans*.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on *Rhizocarpon disporum*, 370 m, MTB 6149; 6.VII.1999, coll. J. K. and P. K. (PRM 758581).

Eastern Bohemia, Krkonoše Mts. ("Sudeti occid."), Distr. Semily, above Harrachov, in the Mumlava stream, on a partly inundated granite boulder, on *Rhizocarpon lavatum*, 900 m, MTB 5258; VII.1959, coll. A. Vězda (hb. Vězda, as *Tichothecium perpusillum*, together with *Muellerella pygmaea* var. *ventosicola*).

Additional specimen examined: AUSTRIA: Steiermark, Gurktaler Alpen: NW - exponierte Abbrüche zwischen Kornock und

Riesennock über der Winkleralm, W der Turracherhöhe, ca. 2160-2180 m, auf *Rhizocarpon lavatum*, 12.V.1985, leg. H. Mayrhofer, J. Poelt, R. Türk, A. Vězda et H. Wittmann (GZU 5655, as *E. rugulosus*).

Specimen compared:
Endococcus exerrans NYL.

SWEDEN: Uppland, Holm. par., on the cape ca. 1 km. ENE of the manor of Sjöö, 59°47'N 17°31'E. On a vertical surface of a large boulder, on *R. distinctum*, 2.VI.1957, coll. R. Santesson (hb. Vězda, GZU- Santesson: Fungi lichenicoli exs. 163, as *E. perpusillus*).

Endococcus macrosporus (ARNOLD) NYL.

Bull. Soc. Bot. France 25: 504 (1878)
Pl. 3, fig 5; Pl. 4, figs 1, 2

Ref. CR: None.

Host lichens in CR: *Rhizocarpon geographicum, R. lecanorinum.*

Other known hosts: Only *Rhizocarpon* species with yellow thallus. In addition to the species listed above, there are also records on *Rhizocarpon alpicola, R. inarense, R. sublucidum, R. tinei* and *R. viridiatrum.*

However, in the last conclusions presented by Sérusiaux et al. (1999: 25-26) it is shown that, except for *Endoccocus macrosporus, E. exerrans* may also occur on *Rhizocarpon* species with yellow thalli (see also above, under *E. fusiger*). Their findings on *Rhizocarpon lecanorinum* included *E. exerrans* only; on *Rhizocarpon geographicum* they recognized both species, *E. macrosporus* and *E. exerrans*, as well.

Observation: *Endococcus macrosporus* is primarily characterized by aggregated, immersed ascomata and by larger spores than possess *E. perpusillus* and *E. fusiger*. Galls presence on host thalli is often observed in the studied specimens. Several of our collections on *R. geographicum* and on *R. lecanorinum* possess pycnidia with bacilliform conidia of 4-5 x 1 µm, arising from ampulliform conidiogenous cells of 6-9 x 3.5-6 µm in diam. *E. macrosporus* on *R. lecanorinum* in our collections is typical in all the characters.

Ecology: *Endococcus macrosporus* was usually collected in the Czech Republic in lowlands only, in warm areas, in rather xerothermic habitats, on sun exposed rocks and outcrops above river canyons. Only once it was collected in mountains.

Distribution: The literature reports are listed here for all records made on *Rhizocarpon* species with yellow thallus. However, with regard to the conclusions of Sérusiaux et al. (l. c.), some of them may belong to *E. exerrans*.

EUROPE: Austria [Anders 1928: 110, as *Tichothecium stigma* KÖRB.; Wittmann et al. 1989: 461, as *Endococcus stigma* (KÖRB.) STIZENB.; Triebel 1989: 97-98, as *E. perpusillus*; Hafellner and Türk 1995: 611, Hafellner et al. 1996: 218; Berger et al. 1998: 402, as *E. perpusillus*], France [Vouaux 1913: 52, as *Discothecium stigma* (KÖRB.) ZOPF], France: Corsica (Hafellner 1994a: 224), Germany, Greece, Italy, Spain, Switzerland (Triebel 1989: 97-98, as *E. perpusillus*), Italy: Sardinia (Nimis and Poelt 1987: 101, as *E. stigma*), Norway (Hafellner 1993: 753), Norway: Spitsbergen (Alstrup and Olech 1993: 36), Ukraine (Vouaux 1913: 52, as *Discothecium stigma*); N. AFRICA: Morocco (Maire and Werner 1938: 28, as *D. stigma*), Spain: Canary Islands (Hawksworth 1982b: 83, Hafellner 1995c: 33); N. AMERICA: Canada: British Columbia (Brodo 1995: 148, as *E. perpusillus*), Greenland (Alstrup and Hawksworth 1990: 30, as *E. stigma*), U.S.A.: Arizona (Triebel et al. 1991: 274, as *E. perpusillus*) and AUSTRALASIA: New Zealand (Triebel 1989: 98, as *E. perpusillus*).

Specimens examined (if not mentioned otherwise, all on *Rhizocarpon geographicum*): CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on shale rocks, 435 m, MTB 5947; 13.X.1996, J. H. (PRM 758339). - Ibid.: 17.IX.1997 (PRM 758459). - Distr. Rakovník, BR Křivoklátsko, in the village of Skřivaň, on roof of half-dilapidated house, on brick, 380 m, MTB 5948; coll. L. Hendrychová, det. J. K. (PRM 758608, only in pycnidial state!). - Distr. Rakovník, BR Křivoklátsko, at the top of the Čertova skála rock, on spilite, 350 m, MTB 6048; 1.VI.1996, coll. J. K. and P. K. (PRM 758340). - Ibid. 14.VII.1997 (PRM 758522). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, below the Týřov castle above the Berounka River, on rocks, on rhyolite, 285 m, MTB 6048; 6.VII.1996, coll. J. H. (PRM 892529, with pycnidia!). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on rocks in a mixed forest, on the W exposed slope, on rhyolite, 280 m, MTB 5949; 10.I.1998, coll. J. K. and P. K. (PRM 892038). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite, 370 m, MTB 5949; 21.VI.1998, coll. J. K. and P. K. (PRM 758458). - Ibid.: 27.VI.1998 (PRM 892168), 29.VI.1998 (PRM 892169). - Distr. Beroun, BR Křivoklátsko, Trubín, on diabasic rocks, 340 m, MTB 6050; 21.III.1997, coll. J. H. and P. K. (PRM 891189, 758286). - The city of Praha, Motol, Kalvárie, on the S slopes of small crest of diabasic rocks, on *Rhizocarpon lecanorinum*, 325 m, MTB 5951; 13.II.1998, coll. J. K. and P. K. (PRM 758698). - The city of Praha, Řeporyje, Dalejské údolí valley, on diabasic rocks, 330-340 m, MTB 5951; 9.VI.1992, coll. J. H. (PRM 892634). - The city of Praha, Nová Ves, the Hemrovy skály diabasic rocks, 290 m, MTB 5952; 15.IV.1999, coll. J. K. (PRM 758671). - The city of Praha, near Pitkovice, in the valley of the Pitkovický potok stream, Pitkovická stráň nature reserve, on small outcrops, on shale, 280 m, MTB 5953; 11.IX.1998, coll. J. K. (PRM 892539).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, on the SE exposed slope of Mt. Studniční hora, on boulders, on quartz, 1250 m, MTB 5260; 21.V.1999, coll. J. K. and P. K., det. J. K. (PRM 760473).

Western Moravia, Distr. Třebíč, near the confluence of the rivers Chvojnice and Oslava, below the Ketkovický hrad castle, on granulite rocks, on *Rhizocarpon lecanorinum*, 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 892660, only in pycnidial state).

Southern Moravia, Distr. Znojmo, the Podyjí NP, the Vraní skála rock, on mica-schist outcrop, 360 m, MTB 7161; 7.VI.1998, coll. J. K. (PRM 892155).

Endococcus propinquus (KÖRB.) D. HAWKSW.

Bot. Notiser 132: 287 (1979)

Bas.: *Microthelia propinqua* KÖRB., Syst. Lich. Germ.: 374 (1855)
Syn.: *Tichothecium gemmiferum* auct. non *Tichothecium gemmiferum* (TAYLOR) KÖRB.

Ref. CR: As *Microthelia propinqua*: Körber (1855: 374), Opiz (1857: 9, 101), Veselsky (1858: 260).

The reports of *Tichothecium gemmiferum* (TAYLOR) KÖRB. by Novák (1888: 64, 1893: 65) and Stein (1879: 351) are all referred to one collection only and the locality report listed there as being in Bohemia, in the Krkonoše Mts., is in reality situated in Poland.

Sel. lit.: Hawksworth (1979b: 287, fig. 2C), Triebel (1989: 98-103).

Host lichens CR: *Porpidia crustulata, P. soredizodes, P. tuberculosa.*

Other hosts (for *E. propinquus* s. l.): *Amygdalaria aeolotera, A. panaeola, Aspicilia mastrucata, Aspicilia* sp., *Buel-*

lia buellioides, B. grimmiae, Buellia sp., *Carbonea* sp., *Catillaria lenticularis, Koerberiella wimmeriana, Lecanora intricata, Lecidea* cf. *atrobrunnea, L. confluens, Miriquidica* sp., *Physcia* cf. *phaea, Porpidia cinereoatra, P. flavicunda, P. flavocaerulescens, P. glaucophaea, P. macrocarpa, P. melinodes, P. musiva, P. pseudomelinodes, P. speirea, P. trullisata, P. zeoroides, Porpidia* sp., *Protoblastenia siebenhaariana, Protohelenella corrosa, Stenhammarella turgida, Tephromela armeniaca, T. testaceoatra, Tremolecia atrata* and *Verrucaria* spp.: *Verrucaria cazzae, V. lilacina, V. parmigerella* and *V. tephroides.*

Notes: According to Sérusiaux et al. (1999: 24), at least three distinct entities can be recognized in *Endococcus*, which may occur on the host genus *Porpidia*. According to these authors, *Endococcus propinquus* s. str. is characterized by the ascomata more or less immersed, 160-260 µm in diam., by the ascospores dark brown, 10-12 x 6.5-7 µm, with wall of 0.6-1 µm thick, relatively thick septum, with a dark medium lamella.

Our material on *Porpidia soredizodes* may belong to another species. Ascomata in the specimen are half immersed to superficial, 160-200 µm, spores when young, slightly verruculose, mature gold-brown, 8-14 x 5-7 µm, generally 10.5 x 6 µm, with the wall 0.6-1 µm thick, septum dark, but thinner than the wall. It belongs neither to *Endococcus brachysporus* which has too small smooth-walled spores, of 7-10 x (4.5-)5-6(-6.5) µm nor to that undescribed taxon treated by Serusiaux et al. (1999: 25) which is characterized by the spores slightly verruculose when young, but by half immersed to completely immersed perithecia, mature spores with thinner wall, of 0.5-0.7 µm and it is said by those authors to occur on hosts of *Porpidia*, such as *P. macrocarpa, P. platycarpoides* and *P. flavocaerulescens.*

Distribution (data for *E. propinquus* s. l.): EUROPE: Austria (Türk and Wittmann 1987: 81, Triebel 1989: 103, Wittmann et al. 1989: 461, Hofmann et al. 1993: 854, Hafellner and Türk 1995: 612), British Isles (Hawksworth et al. 1980: 38, Hawksworth 1983: 7, Triebel 1989: 102), Denmark (Alstrup 1993: 63), Denmark: Faeroe Islands (Alstrup et al. 1994: 90, Alstrup and Christensen 1999: 24), Finland (Triebel 1989: 102), France (Triebel 1989: 102, Diederich and Roux 1991: 20), France: Corsica (Hafellner 1994a: 220), Germany (Triebel 1989: 102, John 1990: 138, Wirth 1994: 11, Scholz 1995: 389), Iceland (Triebel 1989: 101), Italy (Triebel 1989: 103), Poland (Fałtynowicz 1993: 14), the Netherlands (Boom et al. 1996: 96), Norway (Triebel 1989: 101, Santesson 1993: 80), Portugal (Boom and Giralt 1999: 187), Romania (Triebel 1989: 103), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 154), Karelia (Triebel 1989: 103), Slovak Republic (Alstrup 1992: 185), Spain (Calatayud and Barreno 1994: 30), Renobales 1996: 105), Sweden (Triebel 1989: 102, Eriksson 1992: 40, Santesson 1993: 80), Ukraine (Kondratyuk et al. 1998b: 69); ASIA: (Triebel et al. 1991: 274), Japan (Triebel 1989: 103), Russia: Chukotka (Triebel 1989: 103, Zhurbenko and Santesson 1996: 154), Konyam Bay, Taymyr Peninsula (Zhurbenko and Santesson 1996: 154), Putorana Plateau (Zhurbenko 1996: 225, Zhurbenko and Hafellner 1999: 74); N. AFRICA: Morocco (Egea 1996: 108), Spain: Canary Islands (Hafellner 1996c: 136, 1999: 8); N. AMERICA: (Esslinger and Egan 1995: 490), Alaska, Arizona (Triebel et al. 1991: 274), Canada (Triebel 1989: 103), Greenland (Alstrup and Hawksworth 1990: 30); S. AMERICA: Argentina (Triebel 1989: 103, Triebel et al. 1991: 274), AUSTRALASIA: Australia (Triebel 1989: 103, Triebel et al. 1991: 274) and ANTARCTICA: (Olech and Alstrup 1996: 166).

Specimen (not seen): CZECH REPUBLIC: Northern Bohemia, Krkonoše Mts., Mt. Sněžka ("auf der Schneekoppe"), on various crustose lichens on rocks ("parasitisch auf der Kruste verschiedenen Steinflechten"), MTB 5260; coll. G. W. Körber (?L).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Kašperské Hory, on N slope of Mt. Valy, on granite boulders, on *Porpidia soredizodes*, ca. 850 m, MTB 6947; 17.V.1999, coll. J. K. (PRM 758610).

Central Bohemia, Distr. Praha-západ, between the villages of Petrovice and Kamenný Přívoz, on the slope of Medník hill, on boulder field, on granite, on *Porpidia tuberculosa*, 300 m, MTB 6153; 13.IV.1999, coll. J. K. (PRM 758560).

Northern Bohemia, Distr. Liberec, Jizerské hory Mts., NNR Štolpichy, in the valley of the Velký Štolpich brook, on a granite boulder, on *Porpidia crustulata*, ca. 910 m, MTB 5157; 12.VI.1999, coll. J. K. and P. K. (PRM 758607).

Endococcus pseudocarpus NYL.

Flora 56: 143 (1873)

Ref. CR: Kocourková-Horáková (1998a: 229).

Host lichen in CR: *Peltula euploca.*

Other known hosts: *Collema auriforme, C. multipartitum, C. tenax, C. undulatum, Collema* sp., *Peltula obscurans.*

Note: For further information on this species see Kocourková-Horáková (1998a: 229).

Distribution: EUROPE: Austria (Keissler 1930: 396, Türk and Poelt 1993: 45, Hafellner 1994b: 8, Hafellner and Türk 1995: 612), France (Vouaux 1913: 54), Poland (Alstrup and Olech 1996: 750), Sweden (Eriksson 1992: 40, Santesson 1993: 81) and N. AFRICA: Morocco (Maire and Werner 1938: 28, as *Discothecium stigma* f. *pseudocarpum*).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, on a steep slope of Čertova skála, rock above the Berounka River, on spilite, on *Peltula euploca*, 300 m, MTB 6048; 10.IV.1996, coll. J. H. and P. K. (PRM 891442, specimen of *Zwackhiomyces sphinctrinoides*). - Ibid.: 27.IV.1996 (PRM 758630).

Endococcus rugulosus NYL.

Mém. Soc. Sci. Nat. Cherbourg 3: 193 (1855)
Pl. 3, figs 3, 4

Ref. CR: None.

Host lichen in CR: *Verrucaria nigrescens.*

Known hosts: Considering the narrow concept by Sérusiaux et al. (1999: 29), *Endococcus rugulosus* occurs on *Verrucaria macrostoma, V. nigrescens, V. viridula* and on other unidentified *Verrucaria* spp. only.

Discussion: According to Triebel's description of *Endococcus rugulosus* s. l. (Triebel 1989: 104), this fungus should mainly occur on crustose non-lecideoid lichens and it should be characterized by thick-walled, smooth spores, of 13-16 x 6-7.5 µm in diam. However, during her revision Triebel recognized (Triebel 1989: 105), that the species is heterogeneous. Later, two new species with verruculose spores were described

as separated from *Endococcus rugulosus* s. l., i. e. *Endococcus verrucosus* HAFELLNER occurring on *Aspicilia cinerea-caesiocinerea*-complex (Hafellner 1994b: 8) and *E. verrucisporus* ALSTRUP growing on *Ionaspis lacustris* (Alstrup et. al. 1994: 90, Alstrup 1997: 27). In several of our specimens there is an additional taxon with verruculose spores on the *Verrucaria nigrescens* thallus, which is, according to Sérusiaux et al. (l.c.), supposed to be *Endococcus rugulosus* s. str.; with respect to its close relationship with the type host *Verrucaria macrostoma* s. l.

With respect to this concept, the collections reported by Triebel (1989: 102) and Diederich and Roux (1991: 20) on *Verrucaria nigrescens* under the name *E. propinquus* probably represent *E. rugulosus* s. str.

Distribution (only reports on *Verrucaria macrostoma* s. l. and *V. nigrescens*): EUROPE: Belgium (Sérusiaux et al. 1999: 29), France (Diederich and Roux 1991: 20, Sérusiaux et al. 1999: 29), Germany (Triebel 1989: 102), Switzerland (Sérusiaux et al. 1999: 29), and probably also other reports.

Endococcus rugulosus s. str. seems to be a rather common but overlooked parasymbiotic fungus.

Specimens examined: CZECH REPUBLIC (all on *Verrucaria nigrescens*): Central Bohemia, the city of Praha, between Velká Chuchle and Slivenec, on calcareous rocks Homolka, 290 m, MTB 5952; 4.I.1994, coll. J. H. (PRM 889662). - The city of Praha, Nová Ves, the Hemrovy skály diabasic rocks, 290 m, MTB 5952; 15.IV.1999, coll. J. K. (PRM 758701). - The city of Praha, near the Nová Ves settlement in the Prokopské údolí valley, on Bílé skály calcareous rocks, on calcite, 280 m, MTB 5952; 24.IX.1999, coll. J. K. (PRM 758700). - The city of Praha, in the Prokopské údolí valley, on calcareous rocks above the old swimming pool Holyňské koupaliště, 280 m, MTB 5952; 10.IV.1988, coll. J. H. (PRM 758688).

Additional specimen examined: SLOVAK REPUBLIC: Carpathians, Spišské Podhradie, Sivá Brada hill, on calcareous sintre, on *Verrucaria nigrescens* (th.), 500 m, 21.V.1958, coll. A. Vězda, det. J. K. (PRM 515663, Vězda: Lich. Bohemosl. exs. 235, specimen of *Caloplaca lactea*).

Endococcus rugulosus s. l.

Ref. CR: None.

Host lichens in CR: *Rhizocarpon disporum, R. distinctum.*

Until the time when Sérusiaux et al. (1999) presented their narrow concept of *Endococcus* species, the hosts were mentioned in literature for the fungus characterized by smooth-walled, dark brown spores, of 13-16 x 6-7.5 µm and called *Endococcus rugulosus* NYL.

Hosts (of *Endococcus rugulosus* s. l.): *Acarospora* sp., *Amygdalaria consentiens, A. panaeola, A. pelobotryon, Aspicilia aquatica, A. cinerea* agg., *A. grisea, A. virginea, Aspicilia* sp., *Bacidia* sp., *Ionaspis lacustris, Ionaspis suaveolens, Koerberiella wimmeriana, Lecanora agardhiana, L. dispersa, Lecidea lapicida, Placopsis perrugosa,* cf. *Polyblastia* sp., *Porpidia cinereoatra, P. crustulata, P. tuberculosa, Protoparmelia badia, Rhizocarpon amphibium, R. badioatrum, R. geminatum, R. geographicum, R. obscuratum, R. superficiale, Rhizocarpon* sp.

Verrucaria macrostoma and *V. praetermissa* are probably hosts of *E. rugulosus* s. str.

Observation: The spores in our specimens are gold-brown to dark brown, when young with a smooth wall, mature ornamented, but not verruculose, with 1 µm thick wall, with a dark septum, of 10-13 x 5.5-7 µm diam. Asci were seen of 37-52 x 16-18 µm in diam.

Endococcus rugulosus s. l. was seen to grow in mixed infections with *Muellerella pygmaea* var. *ventosicola* and with *Marchandiomyces corallinus*, in both cases on *Rhizocarpon distinctum.*

Distribution data (for *Endococcus rugulosus* s. l.): EUROPE: Austria (Türk and Wittmann 1987: 81, Triebel 1989: 105, Mayrhofer et al. 1989: 224, Hafellner 1991: 100, Hofmann et al. 1993: 854, Obermayer 1993: 143, Türk and Poelt 1993: 45, Wittmann and Türk 1994: 194, Berger and Türk 1994: 165, Hafellner and Türk 1995: 613, Hofmann et al. 1998: 159, Grube 1999: 247), British Isles (Hawksworth 1979: 287, 1983: 6), Denmark: Faeroe Islands (Alstrup et al. 1994: 90, Alstrup and Christensen 1999: 24), France (Bricaud et al. 1992: 85), France: Corsica (Hafellner 1994a: 224), Italy (Triebel 1989: 105), Italy: Sardinia (Nimis and Poelt 1987: 100), Norway (Santesson 1993: 81), Norway: Spitsbergen (Hafellner 1982b: 32, Triebel 1989: 105, Triebel et al. 1991: 275), Poland (Fałtynowicz 1993: 14), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 154), Slovak Republic (Alstrup 1996: 14), Spain (Triebel 1989: 105, Calatayud et al. 1995: 371), Sweden (Santesson 1986: 3, Triebel 1989: 105, Alstrup 1991: 65, Eriksson 1992: 40, Santesson 1993: 81); ASIA: (Triebel et al. 1991: 275), India: Kashmir (Triebel 1989: 105), Russia: Taymyr Peninsula (Zhurbenko 1996: 225, Zhurbenko and Santesson 1996: 154, Zhurbenko 1998: 156), Putorana Plateau (Zhurbenko 1996: 225, Zhurbenko and Hafellner 1999: 74); N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 63, Hafellner 1995c: 33); N. AMERICA: (Esslinger and Egan 1995: 490), Canada: British Columbia (Triebel 1989: 105, Alstrup and Cole 1998: 224), Greenland (Triebel 1989: 105, Kalb and Hafellner 1992: 63), U.S.A.: Oregon, Colorado (Triebel et al. 1991: 275) and AUSTRALASIA: New Zealand (Triebel 1989: 105, Triebel et al. 1991: 275).

Note: According to our observations, *E. rugulosus* s. l. is heterogenous taxon and segregations might be necessary.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on *Rhizocarpon disporum*, 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 758516, together with *Marchandiomyces corallinus*). - Distr. Beroun, BR Křivoklátsko, Trubín, on diabasic rocks, on *R. disporum*, 320 m, MTB 6050; 16.XI.1996, coll. J. H. and P. K. (PRM 890816, together with *Muellerella pygmaea* var. *ventosicola*).

Endococcus stigma (KÖRB.) STIZENB.

Ber. Thätigk. St. Gall. Naturwiss. Ges. 22: 516, no. 1338 (1882)

Syn.: *Discothecium stigma* (KÖRB.) ZOPF, Nova Acta Acad. Caes. Leopold.-Carol. Germ. Nat. Cur. 70: 127 (1897)

Ref. CR: None.

Host lichen in CR: *Acarospora* cf. *nitrophila.*

Other known hosts: *Acarospora fuscata, A. scabrida, A. smaragdula.*

Frequent reports of *Endococcus stigma* from other hosts than *Acarospora* spp. belong to other species of *Endococcus*

such as *E. fusiger*, *E. macrosporus*, *E. perpusillus* or probably *E. exerrans*.

Distribution (only on *Acarospora* spp.): EUROPE: Austria (Türk and Poelt 1993: 45, Hafellner 1996b: 75, Hafellner and Türk 1995: 613), Denmark: Faeroe Islands (Alstrup et al. 1994: 90), Sweden (Santesson 1993: 81, 1994a: 6) and N. AFRICA: Morocco (Maire and Werner 1938: 28).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, NNR Velká Pleš, on the W slope of Velká Pleš hill near the Berounka River, on thallus of *Acarospora* cf. *nitrophila*, 490 m, MTB 6048; 1.VI.1997, coll. J. K. (PRM 890815).

Endococcus verrucosus HAFELLNER
Herzogia 10: 8 (1994)

Ref. CR: None.

Sel. lit.: Hafellner (1994b: 8-10, fig. 5).

Host lichen in CR: *Aspicilia* sp.

Other known hosts: *Aspicilia cinerea, A. grisea, A. simoënsis.*

Distribution: EUROPE: Austria (Hafellner 1994b: 8-10, Hafellner and Türk 1995: 613, Hafellner et al. 1996: 218), Italy, Norway and Spain (Hafellner 1994b: 8-10).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *Aspicilia* sp., 340 m, MTB 6050; 21.III.1997, coll. J. H., conf. J. Hafellner (PRM 758548).

Endococcus sp.
Pl. 2, figs 6, 7

Ref. CR: None.

Host lichen in CR: *Lecidella carpathica.*

Observation: This *Endococcus* species probably represents a so far undescribed species which is characterized by very large and verruculose spores, of (15-)18-23(-25) x (6-)6.5-8(-9) µm. Its ascomata are 150-185 µm high and 120-175 µm wide, 8-spored asci are 50-70 x 25-36 µm in diam. In order to prove its variability, the taxon should be studied on additional material.

Collections on *Lecidella carpathica* have already been reported from Spain (Triebel 1989: 98) and from Canary Islands (Etayo 1996a: 101), however, both under the name *E. perpusillus.*

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *Lecidella carpathica* (th.), 340 m, MTB 6050; 23.III.1997, coll. J. H. (PRM 758580).

Epicladonia D. HAWKSW.
Bull. Brit. Mus., Nat. Hist., Bot. ser. 9: 15 (1981)

This coelomycetous genus comprises three species, all of which are lichenicolous fungi occurring on *Cladonia* species. Two species are known in the Czech Republic.

Epicladonia stenospora (HARM.) D. HAWKSW.
Bull. Brit. Mus., Nat. Hist., Bot. ser. 9: 20 (1981)

Ref. CR: None.

Sel. lit.: Hawksworth (1981a: 20-22, fig. 5C, fig. 9; 1986: 500).

Host lichen in CR: *Cladonia chlorophaea.*

Other known hosts: *Cladonia coniocraea, C. pyxidata, Cladonia* sp.

Note: *Epicladonia stenospora* does not form galls on its hosts, conidiogenous cells lack annelids and produce non-septate or occasionally 1-septate, hyaline conidia. Conidia in our specimen are 7-9.5 x 2.5-3.5 µm in diam. In comparison with *Epicladonia sandstedei* (ZOPF) D. HAWKSW., which was reported from the Czech Republic as well (see p. 139), it is much rarer.

Distribution: EUROPE: Austria (Hawksworth 1986: 500, Mayrhofer et al. 1989: 225, Türk and Poelt 1993: 45, Berger and Türk 1994: 165), Belgium (Sérusiaux et al. 1999: 32), British Isles (Hawksworth 1986: 500), France, Germany (Hawksworth 1981: 21) and Luxembourg (Diederich et al. 1991: 19).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Přílepy, on the W slope of Přílepská skála hill, on sandy soil, on *Cladonia chlorophaea*, 400 m, MTB 5847; 7.IX.1997, coll. J. K. and P. K. (PRM 892460).

Epilichen CLEM.
Gen. Fung.: 69, 174 (1909)

Two species are known in the genus, i. e. *Epilichen scabrosus* (ACH.) CLEM. and *Epilichen glaucinigellus* (NYL.) HAFELLNER. The position of this species in system of fungi is not clarified.

Epilichen scabrosus (ACH.) CLEM.
Genera of Fungi: 174 (1909)

Syn.: *Karschia scabrosa* (ACH.) REHM, Kryptog. Fl.-Deutschl., 2. ed., 1(3): 350 (1890)
Buellia scabrosa (ACH.) KÖRB., Syst. Lich. Germ.: 227 (1855)
Lecidea scabrosa ACH., Meth. Lich.: 48 (1803)

Ref. CR: As *Karschia scabrosa:* Schröter (1893: 131); as *Buellia scabrosa*: Anders (1924b: 84, 1925: 34, 1936: 482), Körber (1855: 227), Kuťák (1910: 201), Nádvorník (1951: 47), Servít (1910: 79, 1925: 140), Stein (1879: 220), Suza (1925: 141), Veselsky (1858: 257); as *Lecidea scabrosa*: Opiz (1856: 158).

Sel. lit.: Hafellner (1979: 74-78,), Triebel (1989: 132-134, fig. 16c), Ihlen (1998).

Host lichens in CR: *Baeomyces rufus.*

Based on conclusions of Ihlen (1998), the record of *Epilichen scabrosus* on *Dibaeis baeomyces* by Servít (1910: 79) is almost certainly incorrect identification either of the fungus or the host.

Other known hosts: *Baeomyces carneus, B. placophyllus.*

Ecology: Parasitic when young, later develops into an autonomous lichen.

Distribution: The species is widely distributed in the boreal-arctic and alpine regions of Europe and N. America, but it is recorded in a high-mountain situation in N. Africa as well. It was relatively abundant in the Czech Republic in the past, but we have failed to find this species so far, although *Baeomyces rufus* is a common lichen in the studied area and other lichenicolous fungi have often been found on it there.

Hafellner (1979: 76) listed the species from EUROPE: Austria, Denmark, Germany, Great Britain, Finland, France, Iceland, Italy, Norway, Poland, Russia: Karelia, Slovak Republic, Switzerland; ASIA: Russia: Guv. Yenisejsk and N. AMERICA: Canada, U.S.A.: Alaska.

Other reports: EUROPE: Austria (Türk and Wittmann 1987: 82, Mayrhofer et al. 1989: 225, Hafellner and Türk 1995: 614, Boom et al. 1996: 635, Hofmann et al. 1998: 159), Denmark (Alstrup and Søchting 1989: 14), Denmark: Faeroe Islands (Alstrup et al. 1994: 91), France (Bricaud and Roux 1990: 126), Germany (Wirth 1981: 5, Kümmerling 1991: 150), Italy (Nimis 1993: 292), Norway (Hafellner 1993: 754, Inoue 1997: 47, Ihlen 1998: 48), Norway: Spitsbergen (Elvebakk and Tønsberg 1992), Poland (Fałtynowicz 1993: 14), Slovak Republic (Pišút et al. 1996: 10), Sweden (Thor 1992: 23, 1993: 111), Switzerland (Boom et al. 1993: 20), Ukraine (Kondratyuk et al. 1998b: 70, Kondratyuk 1999: 35); ASIA: Japan (Inoue 1997: 47, Esslinger 1998: 173), Russia: Russian Arctic (Adreejev et al. 1996: 145), Putorana Plateau (Zhurbenko 1996: 206), Taymyr Peninsula (Zhurbenko 1996: 206, 1998: 156); N. AFRICA: Morocco (Egea 1996: 106), Portugal: Azores (Hafellner 1995c: 34) and N. AMERICA: (Esslinger and Egan 1995: 491), Greenland (Alstrup and Hawksworth 1990: 31, Hansen 1998: 202), U.S.A.: Alaska, Yukon (Thomson and Ahti 1994: 147).

Specimens (not seen): Western Moravia, Distr. Žďár n. Sázavou, between the villages of Bobrová and Olešínky, by a forest path, on *Baeomyces rufus*, MTB 6562; w. date, coll. M. Servít (PRM-not found). - Distr. Žďár n. Sázavou, in a forest near Blažkov, on *Dibaeis baeomyces*, MTB 6563; w. date, coll. M. Servít (PRM-not found).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Kolín, Kostelní Střimelice, on *Baeomyces rufus*, MTB 6054; VIII.1902, coll. Heřmann (PRM 758524, as *Buellia scabrosa*).

Eastern Bohemia, Železné hory Highlands, Distr. Chrudim, Vápenný Podol, on *B. rufus*, MTB 6160; 1908, coll. V. Kuťák (PRM 758523, as *Buellia scabrosa*). - Distr. Havlíčkův Brod, Chotěboř, near gamekeeper's house, on a railway ditch margin, on *B. rufus*, MTB 6260; 1889, coll. E. Bayer, det. J. K. (PRM 758525, 758526).

Additional specimen examined: SLOVAK REPUBLIC: Vysoké Tatry Mts., in the glacier cirque of the Žabie pleso lake, 1900 m, side by side with *Arthrorhaphis citrinella*, 1927, coll. J. Suza, det. J. Hafellner (hb. Vězda).

Hobsonia BERK.

Ann. Bot. 5: 509 (1891)

From the three species accepted in this genus belonging to imperfect fungi, two are lichenicolous. In the Czech Republic only one has been found.

Hobsonia christiansenii B. L. BRADY et D. HAWKSW.

Mycologia 78: 842 (1986)

Ref. CR: None.

Sel. lit.: Diederich (1986: 18, 1989: 241-242).

Host lichen in CR: *Physcia aipolia.*

Other known hosts: *Candelaria concolor, Melanelia exasperata, M. exasperatula, M. subaurifera, Parmelina tiliacea, Phaeophyscia hirsuta, P. orbicularis, Physcia adscendens, P. caesia, P. dubia, P. semipinnata, P. stellaris, P. tenella, Physconia distorta, P. servitii, Scoliciosporum chlorococcum, Xanthoria parietina.*

Observation: The fungus forms dispersed, pink to carmin-red sporodochia similar in size and colour to the sclerotia of *Marchandiomyces corallinus*. However, *Hobsonia christiansenii* is easily recognized by its hyaline to pink helicoid conidia. It causes severe damage of thalli, which practically disappear below the sporodochia, but no circular extending infection lines, which are formed by sclerotia in *Marchandiomyces corallinus* do not occur.

Note: The first report of *H. christiansenii* has already been given by Hawksworth in treatment of the genus *Illosporium* MART. in his study of the lichenicolous hyphomycetes (Hawksworth 1979a: 232). He mentioned two collections of "...a fungus macroscopically very similar to *Illosporium* but with compacted helicoid conidia ..." and said also that "the fungus appears to be closely allied to the genus *Hobsonia* BERK".

Distribution: EUROPE: Austria (Hafellner et al. 1992: 111, Obermayer 1993: 143, Türk and Poelt 1993: 50, Hafellner and Mauer 1994: 122, Hafellner and Türk 1995: 614), British Isles (Bricaud et al. 1992: 87), Finland (Vitikainen et al. 1997: 28), France (Bricaud et al. 1992: 87, Coste 1994: 207, 1997: 134), Germany (Hawksworth and Diederich 1991: 86, Wirth 1994: 12), Italy (Hawksworth 1979a: 232, Bricaud et al. 1992: 87), Luxembourg (Diederich 1986: 18, 1989: 241), Sweden (Thor 1993: 111, Santesson 1993: 91), Ukraine (Hawksworth 1992: 99, Kondratyuk and Khodosovtsev 1997: 588, Kondratyuk et al. 1998b: 75, Kondratyuk 1999: 35) and N. AMERICA: (Esslinger and Egan 1995: 495), Canada: Ontario (Hawksworth 1979a: 232).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Černý Kříž, margin of the Mrtvý luh peat bog, on the bark of *Populus tremula*, on thallus of *Physcia aipolia*, 740 m, MTB 7149; 27.VIII.1993, coll. Z. Palice, det. J. K. (PRM 892039). - Ibid.: X.1998, coll. M. Hecklau (hb. Wirth).

Additional specimen examined: GERMANY: Rheinland Pfalz, Eifel, Landkreis Daun, TK 5705, on *Sambucus nigra*, on *Physcia tenella*, 1996, coll. G. B. Feige (PRM 889678).

Illosporium MART.

Fl. crypt. Erlang.: 325 (1817)

Currently only one species is accepted in this genus, which belongs to the imperfect fungi and forms pale ping sporodochia.

Illosporium carneum FR.

Syst. Mycol. 3: 259 (1829)

Ref. CR: Paul (1909: 138), Picbauer (1932: 17); as *Illosporium roseum*: Opiz (1823: 149).

Sel. lit.: Hawksworth (1979: 232-235, figs 23A-C, 24A-D), Martínez and Hafellner (1998: 281).

Host lichens in CR: *Peltigera didactyla, P. rufescens, Peltigera* sp.

Other known hosts: *Peltigera canina, P. horizontalis, P. malacea, P. polydactylon, P. praetextata, Peltigera* sp.

Note: This species was formerly included in the genus *Illosporium* together with *Illosporium corallinum* that comprised three species forming bright pink, orange or pale brown sclerotia. These three species now belong to the genus *Marchandiomyces*, i. e. *M. corallinus* (ROBERGE) DIEDERICH et D. HAWKSW., *M. aurantiacus* (LASCH) DIEDERICH et ETAYO and an undescribed one, *Marchandiomyces* sp. (Etayo and Diederich 1996: 420-423).

Illosporium carneum is an anamorph of the ascomycetous fungus *Pronectria robergei* (MONT. et DESM.) LOWEN. In our specimens only the anamorph was found without its perfect state.

Distribution: EUROPE: Austria (Hofmann et al. 1995: 231, Hafellner and Türk 1995: 615, Hofmann et al. 1998: 159), British Isles (Hawksworth 1979a: 235, 1983a: 31, Hitch 1995: 40), Belgium (Hawksworth 1979a: 235, Goffinet et al. 1994: 200), Finland, France, Germany, Italy (Hawksworth 1979a: 235), Luxembourg (Diederich et al. 1988: 33, Goffinet et al. 1994: 200), the Netherlands (Brand et al. 1988: 34), Norway (Santesson 1993: 94, Kümmerling and Alstrup 1992: 120), Poland (Fałtynowicz 1993: 16), Slovak Republic (Kalchbrenner 1865: 289, Vězda 1963: 159), Spain (Hawksworth 1979a: 235, Martínez and Hafellner 1998: 281), Sweden (Hawksworth 1979a: 235, Santesson 1993: 94, 1998: 6), Switzerland (Boom et al. 1993: 20); Russia: Novaya Zemlya (Zhurbenko and Santesson 1996: 154); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 225, Zhurbenko and Santesson 1996: 154) and N. AMERICA: (Egan 1991: 397, Esslinger and Egan 1995: 496), Canada: British Columbia (Goward et al. 1994: 58), Ontario (Hawksworth 1979a: 235), Greenland (Hansen 1998: 202), U.S.A.: New York (Hawksworth 1979a: 235).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, in the village of Horská Kvilda, on an old stony wall, on *Peltigera didactyla*, 1100 m, MTB 6946; VI.1994, coll. J. H. (PRM 758631).

Central Bohemia, the city of Praha, in the Prokopské údolí valley, on calcareous rocks above the old swimming pool Holyňské koupaliště, 280 m, on *Peltigera rufescens*, MTB 5952; 10.IV.1988, coll. J. H. (PRM 889669). - The city of Praha, in the village of Nová Ves, on diabasic rocks, on *Peltigera* sp., 280 m, MTB 5952; 5.I.1991, coll. J. H. (PRM 892036).

Karschia KÖRB. em. HAFELLNER

Körber, Parerga Lich.: 459 (1865)
Hafellner, Nova Hedwigia, Beih. 62: 153 (1979)

The genus is placed in Dothideales incertae sedis. Two accepted species in *Karschia* were treated in detail by Hafellner (1979: 178-184) in his monograph of all species originally placed in the genus.

Karschia talcophila (ACH. ex FLOT.) KÖRB.

Parerga Lich.: 460 (1865)

Syn.: *Buellia talcophila* (ACH. ex FLOT.) KÖRB., Syst. Lich. Germ.: 230 (1855)

Ref. CR: Hafellner (1979: 181), Vězda (1979a: 7); as *Buellia talcophila*: Anders (1936: 482), Veselsky (1858: 257).

Exs. CR: Vězda: Lich. sel. exs. 1650.

Sel. lit.: Hafellner (1979: 178-191).

Host lichen in CR: *Diploschistes scruposus.*

Other known hosts: *Diploschistes ochraceus, Diploschistes* sp.

Distribution: According to Hafellner (1979: 181), the species is known in Europe in Austria, Finland, Italy, Poland, Romania, Sweden and Switzerland.

Other records: EUROPE: Austria (Mayrhofer et al. 1989: 226, Türk and Poelt 1993: 53, Wittmann and Türk 1994: 194), Germany (John 1990: 149, Wirth 1994: 12, Heibel et al. 1998: 176), Greece (Zervakis et al.1999: 490), Italy: Sardinia (Nimis and Poelt 1987: 107), Finland (Vitikainen et al. 1997: 29), Luxembourg (Diederich 1986: 2), Poland (Fałtynowicz 1993: 17), Sweden (Santesson 1993: 95) and Switzerland (Boom et al. 1993: 20) and N. AFRICA: Morocco (Egea 1996: 106).

Specimen (not seen): CZECH REPUBLIC: Central Bohemia, Distr. Kolín, near Kolín ("bei Kollin"), on *Diploschistes scruposus* (as *Urceolaria scruposa*), MTB 5957; coll. B. Veselsky (PRM-no specimen found).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, at the top of the Čertova skála rock, on spilite rocks, on *Diploschistes scruposus*, 350 m, MTB 6048; 17.IX.1996, coll. J. H. (PRM 892517). - Distr. Rakovník, BR Křivoklátsko, in the valley of the Úpořský potok stream, on a steep slope on shale rocks, on *Diploschistes scruposus* (th.), 285 m, MTB 6048; 25.VII.1997, coll. J. K. and P. K. (PRM 892543). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, on scree, on *Diploschistes scruposus* (th.), 310 m, MTB 5949; 3.X.1996, coll. J. H. and P. K. (PRM 891166, PRM 891185, specimen of *Lichenostigma cosmopolites*). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite outcrops, on *Diploschistes scruposus*, 360 m, MTB 5949; 27.VI.1998, coll. J. K. and P. K. (PRM 892158).

Southern Moravia, Distr. Znojmo, Moravský Krumlov, on Tábor hill, near the village of Rokytná, on conglomerate rocks, on *Diploschistes scruposus*, 280 m, MTB 6963; V.1966, coll. A. Vězda (Vězda: Lich. sel. exs. 1650, PRM 820782).

Karsteniomyces D. HAWKSW.

Trans. Br. mycol. Soc. 74: 371 (1980)

The genus *Karsteniomyces* was introduced for the coelomycetous fungus, now known to belong to *Scutula miliaris* (WALLR.) TREVIS. as its macroconidial state.

Karsteniomyces peltigerae (P. KARST.) D. HAWKSW.

Trans. Br. mycol. Soc. 74: 371 (1980)

Ref. CR: Triebel et al. (1997: 336), Martínez and Hafellner (1998: 282).

Sel. lit.: Hawksworth (1981a: 22-24, figs 10, 11), Triebel et al. (1997: 334-335, figs 5, 6).

Note: For its teleomorph (perfect state) *Scutula miliaris* (WALLR.) TREVIS. see below in this paper.

Host lichens in CR: *Peltigera canina, P. rufescens.*

Other known hosts: *Peltigera membranacea, Peltigera* sp.

Distribution: EUROPE: Austria (Triebel et al. 1997: 336), Estonia (Jüriado et al. 1999: 48), Germany (Hawksworth and Diederich 1991: 86, Triebel et al. 1997: 336), Finland (Hawksworth 1980b: 371, 1981: 25; Triebel et al. 1997: 336, Vitikainen et al. 1997: 29), France (Triebel et al. 1997: 336), Germany (Wirth 1994: 11, Triebel et al. 1997: 336), Lithuania (Motiejūnaitė and Miądlikowska 1998: 314), Norway (Hawksworth 1980b: 371, 1981: 25; Santesson 1993: 95), Spain (Martínez and Hafellner 1998: 281) and Sweden (Santesson 1993: 95). Additional reports exist with the most probability under its teleomorph name *Scutula miliaris*.

Specimen (not seen): CZECH REPUBLIC: Mähren, bei Namiest [= Náměšť nad Oslavou, ca. 25 km E of Třebíč], on *P. canina*, w. date and collector (M).

Specimens examined: CZECH REPUBLIC: Western Moravia, Distr. Třebíč, near Dobrá Voda, on *Peltigera rufescens*, MTB 6761; 1903, coll. R. Picbauer (BRM 132664, specimen of *P. rufescens* var. *incusa*). - Distr. Třebíč, ca. 1 km S of the town, in the forest "V chudobě", on *P. rufescens*, 450 m, MTB 6761; 24.V.1906, coll. R. Picbauer (BRM 132665, only macroconidial state present, specimen of *P. rufescens*).

Keissleriomyces D. HAWKSW.

Bull. Brit. Mus., Nat. Hist., Bot. ser. 9: 25 (1981)

The genus was introduced by Hawksworth (1981: 25) for the single, coelomycetous fungus *Keissleriomyces sandstedeanus* (KEISSL.) D. HAWKSW., described by Keissler from the Czech locality within the genus *Stagonospora* SACC.

Keissleriomyces sandstedeanus (KEISSL.) D. HAWKSW.

Bull. Brit. Mus., Nat. Hist., Bot. ser. 9: 25 (1981)

Bas.: *Stagonospora sandstedeana* KEISSL., Annal. Naturhist. Mus. Wien 38: 166 (1925)

Ref. CR: Clauzade et al. (1989: 99), Hawksworth (1981a: 25); as *Stagonospora sandstedeana*: Keissler (1925: 166, 1930: 577).

Host lichen in CR: *Cladonia furcata.*

Other known hosts: None, only known on *Cladonia furcata.*

Sel. lit.: Hawksworth (1981a: 25-26, fig. 12, 13).

Observation: The thalli of *Cladonia furcata* affected by *Keissleriomyces sandstedeanus* were totally bleached and grey and infected cushions could be easily recognized among healthy ones of various *Cladonia* spp. growing in relatively large continuous cover in the site. Algal cells in the affected thalli of *Cladonia* were completely killed. Conidiomata of the fungus are developed more frequently in upper half of podetia, mainly towards their tips. Four-celled, broadly fusiform, hyaline conidia, of 18-21 x 4-6 µm in diam. were present in pycnidia in a large quantity. All characters well agree with description and figures given by Hawksworth (1981: 27, fig. 13 E). *K. sandstedeanus* was found to grow in a mixed infection with an additional, probably undescribed *Phoma*-like coelomycetous fungus, forming large, dark gold-brown conidiomata, of 120-160 µm in diam. with hyaline, ampuliform conidiogenous cells, of 4-5 µm in diam., producing one-celled, oblong to ovoid, hyaline conidia in unusually large quantity, of (3)4-5(-6) x 2-3 µm. This fungus, which have already been collected in several localities, will be further studied. Conidiomata of this latter coelomycete occur rather towards the lower part of podetia.

Distribution: Until now the species was known only from the type locality in the Czech Republic.

Second record of this fungus!

Specimen (not seen): CZECH REPUBLIC: Krkonoše Mts. ("Riesengebirge"), Mt. Sněžka ("in monte Schneekoppe"), on podetia of *Cladonia furcata* ("in podetiis *Cladoniae furcatae* var. *truncatae* FLOT."), MTB 5260; O. L. A. Ohlert (W 1921/185 - Holotypus).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, ca.1.5 km S of the Milíčov, at margin of a quarry in *Cladonia* covers, on *Cladonia furcata*, 360 m, MTB 6047; 8.V.1999, coll. J. K. and P. K. (PRM 758566, together with *Phoma* sp.).

Lecidea ACH.

Meth. Lich.: 30 (1803)

Although this genus primarily comprises independent lichenized fungi, several of them are known to be lichenicolous.

Lecidea variegatula NYL.

Flora 48: 6 (1865)

Syn.: *Lecidea microsporella* LETTAU, Festschr. Preuss. Bot. Verein.: 43 (1912)

Ref. CR (non-lichenicolous reports): Hertel (1970: 53), Coppins et al. (1995: 24), Vězda (1995: 2); as *L. microsporella*: Servít and Klement (1933: 9), Vězda (1957a: 76, 1957b: 26).

According to Hertel (l. c.), the report by Servít and Klement (l. c.) may be based on misidentification.

Exs. CR: Vězda: Lich. rar. exs. 184; Vězda: Lich. Bohemosl. exs. 99, as *L. microsporella.*

Host lichen in CR: *Thelocarpon laureri.*

Other known hosts: None.

Note: This discovery was made when collecting *Thelocarpon* species during the author's previous study of that genus (Kocourková-Horáková 1998b). *Lecidea variegatula* has been hitherto known as an independent lichen (Hertel 1995: 176). It has been observed now it that can grow as a parasite, but only in its initial stage of ontogenic development.

Observation: Infected ascomata of *Thelocarpon* are irregularly formed and become grey-brown at first. None or very retarded asci were seen in this stage of development in this one specimen. Apothecia of *Lecidea* arise later from the infected areoles and break through their cortex. Mature independent thalli of Atrobrunnea-type of *Lecidea* possess one or two apothecia.

We have not yet seen another case of *Thelocarpon* ascomata becoming completely reshaped and getting drowned.

Ecology: *Lecidea variegatula* is a lichenized fungus that grows on siliceous or basic pebbles, stones, less frequently on rocks in initial communities of lichens in wet conditions. According to Wirth (1995: 256), it is distributed from lowlands to montane regions primarily in areas of non-deciduous woodlands, but almost all the Czech localities are situated in the regions of deciduous woodlands.

Distribution: *Lecidea variegatula* is probably not rare, but overlooked lichen. It has been reported from Europe only. It is known also from Germany (Hertel 1969: 328, 1973: 500; John 1990: 168, Wirth 1987: 256, 1994: 14, 1995: 521), Poland (Hertel 1969: 328, Nowak and Tobolewski 1975: 554, Fałtynowicz 1993: 20) and Russia (Hertel 1970: 52, 1995: 176).

Specimen examined: CZECH REPUBLIC: Western Moravia, Distr. Jihlava, between Třešť and Horní Cerekev, near Rácov, on gneiss boulder at a field margin, on *Thelocarpon laureri*, ca. 630 m, MTB 6758; 15.X.1996, coll. J. H., det. J. Hafellner and J. K., conf. M. Andreev (PRM 891436).

Licea SCHRAD.

Nova Gen. Plant: 16 (1797)

The genus includes saprophytic members of Myxcomycetes; only one species is known to grow on lichens (Clauzade et al. 1989: 10-14).

Licea parasitica (ZUKAL) G. W. MARTIN

Mycologia 34: 702 (1942)

Syn.: *Hymenobolina parasitica* ZUKAL, Österr. Bot. Zeitschr. 43: 133 (1893)

Ref. CR: Dvořáková (1999).

Exs. CR: Kabát et Bubák: Fungi imperf. exs. 247, as *Hymenobolina parasitica* (not seen).

Host lichens in CR: *Lecidella achristotera, Phaeophyscia orbicularis, Physconia grisea, P. perisidiosa.*

Known hosts (only lichens): *Opegrapha varia* s. l., *Pannaria* sp., *Phaeophyscia orbicularis, Physconia distorta, P. grisea, Micarea prasina, Xanthoria fallax.*

Ecology: This facultatively lichenicolous myxomycete often grows on free-living algae on tree bark. It has been often found in nitrophilous conditions. In the Czech localities it was collected on fruit-trees bark and on *Salix*, *Sambucus* and *Populus*, where it was associated with the lichens *Amandinea punctata, Bacidina arnoldiana, Candelariella xanthostigma, Hypogymnia physodes, Parmelia sulcata, Physcia adscendens, P. tenella* and *Scoliciosporum chlorococcum.*

Distribution: EUROPE: Austria (Obermayer 1993: 143, Krieglsteiner 1993: 110, Hafellner and Mauer 1994: 124), British Isles (Hitch 1995: 39), France: Corsica (Hafellner 1994a: 225), Germany (Krieglsteiner 1993: 110), Luxembourg (Diederich 1989: 7) and N. AMERICA (Clauzade et al. 1989: 13).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Přílepy, on alga cf. *Desmococcus* sp. and *Physconia grisea*, 320 m, MTB 5847; 9.X.1995, coll. J. H. (PRM 889675). - Distr. Rakovník, between the villages of Roztoky and Nový Jáchymov, the Leontýnský zámek castle, in the castle garden, on the bark of *Fraxinus excelsior*, on *Lecidella achristotera*, 420 m, MTB 6049; 16.III.1996, coll. J. H. and P. K. (PRM PRM 758298). - The city of Praha, Komořany, close to the Vltava River, on the bark of *Populus alba*, on algae and thallus of *Phaeophyscia orbicularis*, 190 m, MTB 6052; 16.XI.1996, coll. J. H. (PRM 890814).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Strážné, on *Phaeophyscia orbicularis*, 735 m, MTB 5359; 31.X.1995, coll. J. H. (PRM 889671).

Northern Moravia, Moravskoslezské Beskydy Mts., Distr. Frýdek-Místek, in the village of Horní Lomná, on the bark of *Salix* sp., on *Physconia perisidiosa*, 605 m, MTB 6477; 28.X.1995, coll. J. H. (PRM 887552, specimen of *P. perisidiosa*).

Additional specimen examined: GERMANY: Bavaria, between Abensberg and Offenstetten, near the locality with arenaceous dunes in pine forest, on thallus and apothecia *Opegrapha varia* s. l., 370 m, 21.VIII.1995, coll. J. H. (PRM 889676).

Lichenochora HAFELLNER

Nova Hedwigia 48: 358(1989)

Nineteen species are currently known (Navarro-Rosinés et al. 1998) in this genus belonging to the family *Phyllachoraceae*.

Lichenochora obscuroides (LINDS.) TRIEBEL et RAMBOLD

Bibl. Lichenol. 48: 168 (1992)

Syn.: *Lichenochora thallina* (COOKE) HAFELLNER, Nova Hedwigia 48: 363 (1989)

Ref. CR: None.

Sel. lit.: Hafellner (1989: 368), Rambold and Triebel (1992: 168), Navarro-Rosinés et al. (1998: 122).

Host lichen in CR: *Phaeophyscia orbicularis.*

Other known hosts: *Phaeophyscia hirsuta, Physcia adscendens, P. biziana, P. caesia.*

Note: On members of *Physciaceae* may also occur *Lichenochora polycoccoides* on *Physcia tribacia* and *Lichenochora weilii* on *Physconia* spp.

Ecology: *Lichenochora obscuroides* is a parasitic species forming white-brown galls on the host thalli. Severe infection may lead to destruction and to death of the lichen. It was collected in well-lit situations on bark of free standing broad-leaved trees along roads or thin forests. Most frequently it has been collected on *Phaeophyscia orbicularis*. In the author's collection it occurs on this host exclusively even when an alternative host *Physcia adscendens* is present. In an old specimen made by Weidman, *Physcia adscendens* is the only host of *L. obscuroides*.

Distribution: EUROPE: Austria (Hafellner 1989: 368, Türk and Poelt 1993: 70, Santesson 1994a: 7, Navarro-Rosinés et al. 1998: 122), Croatia (Hafellner 1989: 368, Navarro-Rosinés et al. 1998: 122), Germany (Navarro-Rosinés et al. 1998: 122), Great Britain (Navarro-Rosinés et al. 1998: 122), Luxembourg (Hafellner 1989: 368, Diederich 1989: 155, John 1990: 173, Diederich et al. 1991: 29, all as *L. thallina*; Santesson 1994a: 12, Navarro-Rosinés et al. 1998: 122), Portugal (Boom and Giralt 1999: 188), Spain (Hafellner 1989: 368, Etayo and Breuss 1996: 218, Navarro-Rosinés et al. 1998: 122), Sweden (Santesson

1993: 130) and N. AMERICA: (Esslinger and Egan 1995: 505, as *L. thallina*), Canada: (Navarro-Rosinés et al. 1998: 122), British Columbia (Goward et al. 1994: 58).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, LPA Český kras, 0.5 km S of the village of Srbsko, by a road, on the bark of *Juglans regia*, on *Phaeophyscia orbicularis*, 215 m, MTB 6050; 1.VII.1998, coll. J. K. PRM 758632). - The city of Praha, in the Prokopské údolí valley, below the settlement Nová Ves, on the bark of *Sambucus nigra*, on *Phaeophyscia orbicularis*, 280 m, MTB 5952; 15.IV.1999, coll. J. K. (PRM 758594).

Southern Bohemia, Distr. Jindřichův Hradec, Třeboň, on bark of various broad-leaved trees, on *Physcia adscendens*, MTB 7054; 1887, coll. A. Weidman, det. J. K. (PRM 758696, specimen of *Buellia pharcidia*, as *Diplotomma athroum* var. *pharcidia*).

Lichenmoconium PETR. et SYD.

Repert. spec. nov. Regni veg., Beih. 42: 432 (1927)

Species of the genus *Lichenoconium* occur on very wide range of hosts but primarily on the species of *Lecanoraceae* and *Parmeliaceae*, almost all of which are parasitic lichenicolous fungi.

Lichenoconium erodens M. S. CHRIST. et D. HAWKSW.

Persoonia 9: 174 (1977)

Ref. CR: None.

Sel. lit.: Hawksworth (1977b: 174-177, Pl. 24, figs A-D; 1981: 35-36, fig. 18B).

Host lichens in CR: *Cetraria islandica, Cladonia pocillum, C. pyxidata, Cladonia* sp., *Evernia prunastri, Flavoparmelia caperata, Hypocenomyce scalaris, Hypogymnia physodes, Lecanora* cf. *chlarotera, L. conizaeoides, L. rupicola, Ochrolechia pallescens, Parmelia omphalodes, P. saxatilis, P. sulcata, Pertusaria leioplaca, Platismatia glauca, Pseudevernia furfuracea, Tuckermannopsis chlorophylla.*

Other known hosts: *Biatoropsis usnearum, Cladonia coniocraea, C. digitata, Evernia mesomorpha, Flavoparmelia soredians, Hypogymnia farinacea, H. tubulosa, Hypotrachyna afrorevoluta, H. galbina, H. laevigata, H. revoluta, Lecanora* cf. *argentata, L. pulicaris, Lecidella elaeochroma, Lobaria amplissima, Melanelia fuliginosa, M. subargentifera, Menegazzia terebrata, Mycoblastus fucatus, Neofuscelia pulla, Parmeliopsis ambigua, Parmotrema chinense, P. crinitum, Pertusaria hymenea, P. pertusa, Pertusaria* sp., *Phlyctis argena, Punctelia borreri* s. l., *Ramalina fraxinea, Rhizoplaca chrysoleuca, Usnea* sp. and *Vulpicida tubulosus.*

Leuckert and Poelt (1989: 128), who monographed the *Lecanora rupicola*-group, did not mention *Lichenoconium erodens* among lichenicolous fungi which they found and identified on representatives of this group, therefore, *Lecanora rupicola* is apparently a new host for this fungus.

Observation: *Lichenoconium erodens* causes damage to host thalli or apothecia. On some hosts it forms bleached, grey-brown infected spots, with well-defined black border of the size 2-5 mm in diam. or larger (on *Cetraria islandica, Hypogymnia* spp., *Parmelia omphalodes, P. saxatilis, P. sulcata, Platismatia glauca*) or affects large parts of thalli where does not form black bordered lines (e. g. *Flavoparmelia caperata, Hypocenomyce scalaris, Lecanora conizaeoides, Ochrolechia pallescens, Parmeliopsis ambigua, Pertusaria leioplaca*). In other cases affected apothecia become bleached (*Lecanora conizaeoides, L.* cf. *chlarotera*). In *Evernia prunastri* the infection is observable as bleached tips of lobes with conidiomata, separated from healthy tissue by black border.

In old infections the cortex of thalli and epithecium in apothecia of infected lichens become eroded. *Lichenoconium erodens* is characterized usually by very small conidiomata 25-50 (-70) µm in diam. and subglobose dark brown conidia 2-3 µm arising from short subcylindrical to ampulliform, subhyaline or hyaline conidiogenous cells. Together with *L. pyxidatae* (OUDEM.) PETR. et SYD., it produces the smallest conidia in the genus.

Ecology: *Lichenoconium erodens* is a parasite which occurs on a wide range of host species. Usually it is found on lichens growing on bark and wood of various trees; more rarely, on terricolous and saxicolous lichens. It grows in mixed infections together with *Athelia* spp., *Cornutispora lichenicola, Lichenoconium lecanorae* (JAAP) D. HAWKSW., *Phaeosporobolus usneae* D. HAWKSW. et HAFELLNER, *Phoma cytospora* (VOUAUX) D. HAWKSW. and *Spirographa fusisporella* (NYL.) ZAHLBR. *L. erodens* may cause symptoms superficially similar to infection of *Phoma cytospora*, especially when the host is of *Parmeliaceae*. Mixed infections on *Hypogymnia physodes*, which are not uncommon, have already been observed by Hawksworth (1977b: 176).

Distribution: EUROPE: Austria (Hawksworth 1977b: 175, 1981a: 35; Hafellner et al. 1992: 114, Türk and Poelt 1993: 70, Wittmann and Türk 1994: 196, Hafellner and Türk 1995: 616, Hofmann et al. 1998: 160), British Isles (Hawksworth 1977b: 175, 1981a: 35; Hawksworth and Minter 1980: 572, Santesson 1994a: 12), Denmark (Hawksworth 1977b: 175, 1981a: 35, Alstrup et al. 1988: 26, Alstrup et al. 1995: 88), Denmark: Bornholm (Alstrup 1994: 53), Estonia (Jüriado et al. 1999: 60), Finland (Vitikainen et al. 1997: 37), France (Hawksworth 1977b: 175, Hawksworth 1981: 35, Diederich and Roux 1991: 24, Bricaud et al. 1992: 88), France: Corsica (Hafellner 1994a: 225), Germany (Hawksworth 1977b: 175, 1981a: 35; Diederich 1986: 20, John 1990: 173), Luxembourg (Diederich 1986: 20, 1989: 243), Poland (Fałtynowicz 1993: 21), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 155), Slovak Republic (Alstrup 1996: 13), Slovenia (Mayrhofer et al. 1996: 124, Hafellner 1998: 157), Spain (Calatayud et al. 1995: 372, Etayo and Breuss 1996: 226, Martínez and Hafellner 1998: 284), Sweden (Hawksworth 1977b: 175, 1981a: 35; Santesson 1993: 130, Thor 1993: 112, Hafellner 1998: 157), Ukraine (Hawksworth 1992: 99, Kondratyuk and Khodosovtsev 1997: 588, Kondratyuk et al. 1998b: 95, Kondratyuk 1999: 36); N. AMERICA: (Esslinger and Egan 1995: 505), U.S.A.: New Jersey (Hawksworth 1977b: 175, 1981a: 35) and S. AMERICA: Chile (Diederich and Christiansen 1994: 59).

Note: Although *L. erodens* is probably the most common lichenicolous fungus in the Czech Republic, it is reported here for the first time.

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Cheb, near Lužná, on the bark of *Pyrus communis*, on *Hypogymnia physodes*, 450 m, MTB 5839; 13.VI.1996, coll. J. H. (PRM 890812). - Šumava Mts., Distr. Klatovy, Modrava, Mt. Smrkový vrch, on the bark of *Acer pseudoplatanus*, on *Platismatia glauca*,

1100 m, MTB 6946; 8.VI.1995, coll. J. H. (PRM 758301). - Šumava Mts., Distr. Klatovy, Horská Kvilda, ca. 2 km N of Antígl, on shaded scree near the Hálkova chata log-house, on *Cladonia* sp., ca. 850 m, MTB 6947; 17.X.1998, coll. V. Wirth and M. Hecklau (hb. Wirth 32344). - Brdy Mts., Distr. Plzeň-South, Míšov, Míšovské buky nature reserve, on *Lecanora conizaeoides*, 750 m, MTB 6448; 12.XII.1997, coll. J. K., Z. Pouzar, Š. Bayerová, det. J. K. (PRM 892509, together with *Athelia epiphylla*).

Central Bohemia, Distr. Rakovník, Podbořánky, Rybníčky u Podbořánek nature reserve, in a pine-spruce forest, near a peat bog, on the bark of *Picea abies*, on *Hypogymnia physodes*, 490 m, MTB 5946; 20.VII.1997, coll. J. K. and P. K. (PRM 891202). - Ibid.: on the bark of *Pinus sylvestris*, on *Lecanora conizaeoides* and *Scoliciosporum chlorococcum* (th.), 24.VII.1997, coll. J. K. and P. K. (PRM 892175, specimen of *Athelia* sp.). - Ibid.: on a stump of *Betula verrucosa*, on *Lecanora conizaeoides*, 3.VII.1999, coll. J. K. and P. K. (PRM 758606, together with *Lichenoconium lecanorae*). - Distr. Rakovník, Bedlno, in a quarry, on a granite rock, on *Parmelia saxatilis*, 485 m, MTB 5847; 19.III.1997, coll. J. H. and P. K. (PRM 890810). - Distr. Rakovník, ca. 1 km SW of the village Petrovice, in pine forest, on *Cetraria islandica*, 450 m, MTB 5947; 25.VII.1994, coll. J. H. and P. K. (PRM 758605). - Distr. Rakovník, BR Křivoklátsko, Krakovec, in a valley near the castle, on shale rocks above the Krakovský potok brook, on *Cladonia pyxidata* (pod.), 435 m, MTB 5947; 14.IX.1996, coll. J. H. (PRM 891174). - Ibid.: on *Cladonia pocillum*, 17.IX.1997 (PRM 892472). - Distr. Rakovník, BR Křivoklátsko, near Skryje, near the Skryjská jezírka nature reserve, on a slope of Dubinky hill, on *Hypogymnia physodes*, 475 m, MTB 6048; 16.VII.1996, coll. J. H. (PRM 889748). - Distr. Rakovník, BR Křivoklátsko, NNR Velká Pleš, on the W slope of Velká Pleš hill above the Berounka River, on *Lecanora conizaeoides* (th. and ap.), 490 m, MTB 6048; 20.VII.1996, coll. J. H. (PRM 889672). - Distr. Rakovník, BR Křivoklátsko, on a steep slope of the Čertova skála rock above the Berounka River, on spilite, on *Flavoparmelia caperata*, 300 m, MTB 6048; 28.IX.1996, coll. J. H. and P. K. (PRM 892170). - Distr. Příbram, Brdy Mts., on a slope of Mt. Třemšín, on the bark of *Betula verrucosa*, on *Lecanora conizaeoides*, 760 m, MTB 6448; 28.V.1998, coll. J. K. and Š. Bayerová (PRM 758590, specimen of *Clypeococcum hypocenomycis*). - Distr. Rakovník, BR Křivoklátsko, 1 km NE of Nezabudice, Nezabudické skály rocks, on rhyolite, on *Flavoparmelia caperata*, 270 m, MTB 5949; 3.IX.1997, coll. J. K. (PRM 891208). - Distr. Rakovník, BR Křivoklátsko, near Roztoky, in the valley of the Klucná brook, on the SW slope above scree, on the bark of *Abies alba*, on *Lecanora conizaeoides* (th., ap.), 300 m, MTB 5949; 31.VIII.1997, coll. P. K. and J. K. (PRM 891439). - Ibid.: on scree, on *Lecanora rupicola*, 300 m, MTB 5949; 5.X..1996, coll. P. K. and J. K. (PRM 758604). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W slope, in a mixed forest, on a cone of *Larix decidua* lying on a ground, on *Lecanora conizaeoides* (ap. and th.), 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K. (PRM 892035). - Distr. Příbram, Brdy Mts., near Dolní Láz, near the Láz lake, on the bark of *Acer pseudoplatanus*, on *Hypogymnia physodes* (th.), 640 m, MTB 6349; 24.VI.1997, coll. Š. Bayerová, det. J. K. (hb. Bayerová). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, in the valley of the Šárecký potok stream, "soutěska Džbán" gulch, below N steep wall of Šestákova skála rock, on branches of *Salix*, on *Hypogymnia physodes*, ca. 250 m, MTB 5951; 27.XI.1998, coll. J. K. and P. K. (PRM 758287). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, on rocks of Dívčí skok hill, on lydite, on *Parmelia omphalodes*, ca. 290 m, MTB 5951; 27.XI.1998, coll. J. K. and P. K. (PRM 892627). - The city of Praha, Nová Ves, the Hemrovy skály diabasic rocks, on *Flavoparmelia caperata*, 290 m, MTB 5952; 15.IV.1999, coll. J. K. (PRM 758674). - Distr. Kolín, Louňovice, NNR Voděradské bučiny, on the bark of *Quercus robur*, on *Hypogymnia physodes* (th.), 400 m, MTB 6054; 22.XI.1997, coll. I. Kazdová, det. J. K. (PRM 892482). - Ibid.: on the bark of *Quercus robur*, on *Lecanora conizaeoides* (ap., th.), VII.1996 (PRM 892171, together with *Athelia* sp.). - Distr. Nymburk, near Rožďalovice, near the Bučický rybník lake, on the bark of *Quercus robur*, on *Hypogymnia physodes*, ca. 230 m, MTB 5657; 20.IX.1997, coll. J. K. (PRM 891187).

Southern Bohemia, Šumava Mts., Distr. Prachatice, 2 km W of the village of Kvilda, S of Mt. Lapka, flood plain spruce forest, on *Pseudevernia furfuracea*, 1100 m, MTB 6947; 14.IX.1999, coll. Z. Pouzar, det. J. K. (PRM 759349, specimen of *Phaeosporobolus usneae*). - Šumava Mts., Distr. Prachatice, Borová Lada, by a road, on the bark of *Prunus avium*, on *Hypogymnia physodes*, 900 m, MTB 7047; 9.VI.1995, coll. J. H. (PRM 758329, together with *Athelia* sp.). - Šumava Mts., Distr. Prachatice, near Horní Vltavice, near the Teplá Vltava River, by road, on the bark of *Padus racemosa*, on *Hypogymnia physodes*, 880 m, MTB 7048; 11.V.1996, coll. J. H. (PRM 758597). - Šumava Mts., Distr. Prachatice, in the Velká Niva peat bog near Lenora, on *Pinus rotundata*, on *Ochrolechia pallescens*, 750 m, MTB 7048; 12.VII.1997, coll. Z. Palice, det. J. K. (hb. Palice). - Šumava Mts., Distr. Prachatice, 3 km S of the Černý Kříž settlement, Mt. Srnčí vrch, Jelení vrch nature reserve, on a fallen trunk of *Fagus*, on *Hypogymnia physodes*, ca. 850 m, MTB 7149; 15.X.1998, coll. J. K. (PRM 758299). - Distr. Jindřichův Hradec, on a bank of the Vyšehrad lake, on the bark of *Quercus robur*, on *Evernia prunastri*, 350 m, MTB 6955; 20.V.1998, coll. M. Švecová, det. J. K. (PRM 892147, specimen of *Phaeosporobolus usneae*). - Distr. Pelhřimov, 2 km SE of the village of Křelovice, on bryophytes on gneiss boulder, ca. 470 m, MTB 6457; 26.VII.1986, coll. J. H. (PRM 887428, specimen of *Flavoparmelia caperata*). - Distr. Pelhřimov, between Humpolec and Světlá nad Sázavou, in the Záběhlice village, by a road, on the bark of *Betula verrucosa*, on *Tuckermannopsis chlorophylla*, 550 m, MTB 6358; 6.VII.1997, coll. J. K. and P. K. (PRM 758598).

Northern Bohemia, Jizerské hory Mts., Distr. Jablonec n. Nisou, in the village of Desná near Tanvald, on the bark of *Sorbus aucuparia*, on *Hypogymnia physodes*, ca. 700 m, MTB 5258; 9.III.1986, coll. J. H. (PRM 889674). - Jizerské hory Mts., Distr. Jablonec n. Nisou, Mariánskohorské boudy, on the bark of *Acer pseudoplatanus*, on *Lecanora argentata*, 850 m, MTB 5257; 9.X.1999, coll. J. K. (PRM 760470).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Velká Úpa, in the Vavřincův důl valley, on a granite boulder in a meadow, on *Parmelia saxatilis*, 950 m, MTB 5360; 4.V.1997, coll. J. K. (PRM 758330). - Distr. Havlíčkův Brod, the Chotěboř town, in a forest behind "St. Anna", on the bark of *Larix*, on *Parmelia sulcata*, MTB 6260; 1903, coll. E. Bayer (PRM 693256, as *Abrothallus parmeliarum*). - Orlické hory Mts., Distr. Rychnov nad Kněžnou, near Podlesí, roadside trees, on the bark of *Picea abies*, on *Lecanora conizaeoides* (th., ap.) 550 m, MTB 5765; 19.IV.1996, coll. J. H. (PRM 890809).

Western Moravia, Distr. Jihlava, NNR Velký Špičák, on a slope of Špičák hill, in a pine forest, on the bark of *Picea abies*, on *Parmeliopsis ambigua*, 660 m, MTB 6659; 16.X.1996, coll. J. H. (PRM 892524, specimen of *Spirographa fusisporella*). - Distr. Jihlava, NNR Velký Špičák, below Špičák hill, on the bark of *Fraxinus excelsior*, on *Hypogymnia physodes*, 620 m, MTB 6659; 16.X.1996, coll. J. H. (PRM 890813). - Ibid.: on the bark of *Acer pseudoplatanus*, on *Hypocenomyce scalaris* and *Hypogymnia physodes*, coll. J. H. (PRM 891213). - Ibid.: on *Lecanora* cf. *chlarotera* (ap. and th.) (PRM 891180). - Ibid.: on the bark of *Fraxinus excelsior*, on *Pertusaria leioplaca* (th.) (PRM 758282, specimen of *Cornutispora lichenicola*). - Distr. Třebíč, near the Chvojnice and Oslava rivers confluence, the Ketkovický hrad castle, on granulite rocks, on *Parmelia saxatilis*, 360 m, MTB 6863; 22.X.1998, coll. J. Farkač, det. J. K. (PRM 758317). - Distr. Jihlava, 2 km SW of the village of Plandry, near the confluence of the Bělokámenský potok brook and the Jihlava River, on the bark of *Alnus glutinosa*, on *Evernia prunastri*, 480 m, MTB 6559; 21.VIII.1998, coll. J. K. and P. K. (PRM 892465). - Distr. Žďár n. Sázavou, between Zahradiště and Krásněves, on the bark of *Acer platanoides*, on *Evernia prunastri*, 550 m, MTB 6561; 5.VII.1997, coll. J. K. (PRM 891184). - Ibid.: on *Hypogymnia physodes* (PRM 758596).

Southern Moravia, Distr. Znojmo, Bítov, by a road, on the bark of *Tilia cordata*, on *Evernia prunastri*, 410 m, MTB 7060; 5.IX.1998, coll. J. K. (PRM 892523). - Distr. Znojmo, Chvalatice, the Vranov reservoir, on the exposed S slope near the "Chvalatická zátoka" creek, on quartzite boulders, on *Hypogymnia physodes*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 892526). - Distr. Znojmo, the Podyjí NP, Býčí skála rock, on a granite rock, on *Flavoparmelia caperata*, 310 m, MTB 7161; 5.VI.1998, coll. J. K. (PRM 892476).

Additional specimen examined: GERMANY: Bavaria, Bayerische Wald, Mt. Bayer. Pleckenstein, on decorticated trunk of *Picea*, on *Parmeliopsis ambigua*, ca. 1100m, MTB 7249; 18.X.1998, coll. J. K. (PRM 760469).

Lichenoconium lecanorae (JAAP) D. HAWKSW.

Bull. Brit. Mus., Nat. Hist., Bot. ser. 6: 183 (1979)

Syn.: *Lichenoconium parasiticum* D. HAWKSW., Persoonia 9: 178 (1977)

Ref. CR: As *Lichenoconium parasiticum*: Hawksworth (1977b: 179); *as L. lecanoracearum:* Svrček (1982: 93).

Sel. lit.: Hawksworth (1977b: Pl. 26, figs A-G, Pl. 27 figs A-D; 1981: 36, fig. 18E)

Host lichens in CR: *Lecanora* cf. *albella, L. carpinea, L. chlarotera, L. conizaeoides, Parmelia saxatilis.*

Other known hosts: *Arctopeltis thuleana, Biatora* sp., *Biatoropsis usnearum, Evernia prunastri, Hypotrachyna galbina, Imshaugia aleurites, Lecanora admontensis, L. albella, L. argentata, L. cenisia, L. cenisia* var. *atrynea, L. intumescens, L. muralis, L. polytropa* s. l., *L. rubicunda, L. saligna, L. subcarnea, L. sulphurea, L. superfluens, L. swartzii, L. symmicta, Lecidella elaeochroma, Lobaria pulmonaria, Parmelia sulcata, Parmelina pastillifera, Pertusaria pertusa, Protoparmelia badia, Punctelia borreri, Rhizoplaca chrysoleuca, R. melanophtalma, R. subdiscordans, Squamarina lentigera, Tremella hypogymniae.*

Observation: *Lichenoconium lecanorae* badly affects apothecia or host thalli of lichens. In progressive or older infections, affected apothecia usually become totally black and the infection symptoms are also recognizable in the thallus as black spots. *L. lecanorae* occurs primarily in apothecia of the *Lecanoraceae* species, while the thalli are affected more commonly in representatives of *Parmeliaceae*.

The black infection spots are very frequently found on saxicolous thalli of *Parmelia saxatilis*. The spots are flat, 3-6 mm in diam. and are situated regularly at margins of host thalli. In the case of heavy infection, several concentric circles of these spots may occur on the thallus. Conidiomata occuring in these black spots are very inconspicuous, but they were found by careful study in about 50% infected specimens. Since only sterile spots were found at first, the infection was considered at the beginning that belongs either to *Homostegia piggotii* (BERK. et BROOME) P. KARST. or to the recently described *Sphaerellothecium parmeliae* DIEDERICH et ETAYO (Etayo and Diederich 1998: 117-119), two species which both may cause superficially similar symptoms of infection. However, the black spots caused by *H. piggotii* are usually fertile stromata, moreover they soon become swollen. *S. parmeliae* may be found without perithecia and develops typical black spots (Etayo and Diederich 1998), but when sterile, it is superficially recognizable by black ramified hyphae expanding from these spots on surface of thallus. Both these fungi primarily occur on corticolous *Parmelia* s. str.

Mixed infection with other fungi are in *Lichenoconium lecanorae* much rarer than in *L. erodens*. *L. lecanorae* was observed to associate with *L. erodens* only.

Distribution: According to Hawksworth (1981a: 36) the species is widely distributed in EUROPE: Austria, British Isles, Czech Republic, Denmark, France, Germany, Hungary, Italy, the Netherlands, Spain, Sweden and Switzerland and also it is known from N. AMERICA: U.S.A.

Other reports: EUROPE: Austria (Hafellner et al. 1992: 114, Hofmann et al. 1993: 860, Obermayer 1993: 143, Hafellner and Mauer 1994: 124, Hafellner and Türk 1995: 616, Hafellner et al. 1996: 222, Hofmann et al. 1998: 160), Belgium (Diederich 1986: 20), Denmark (Vězda 1978: 7, as *L. parasiticum*; Alstrup et al. 1988: 26, Alstrup et al. 1995: 88), Denmark: Bornholm (Alstrup 1994: 51), Finland (Hawksworth and Atienza 1994: 48, Vitikainen et al. 1997: 37), France (Diederich and Roux 1991: 24), France: Corsica (Hafellner 1994a: 225), Germany (Hawksworth and Diederich 1991: 86, John 1990: 174, Hauck 1995b: 220), Italy (Roux and Triebel 1994: 512), Italy: Sardinia (Nimis and Poelt 1987: 139), Luxembourg (Diederich 1986: 20, 1989: 244), Norway (Hafellner 1993: 754, Santesson 1993: 130), Norway: Spitsbergen (Alstrup and Olech 1993: 35), Poland (Fałtynowicz 1993: 21), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 155), Slovak Republic (Alstrup 1996: 13), Slovenia (Grube et al. 1995: 194, Mayrhofer et al. 1996: 125), Spain (Alvarez and Carballal 1992: 364, Calatayud et al. 1995: 372, Etayo and Diederich 1996b: 99), Spain: Mallorca (Etayo 1996b: 116), Sweden (Santesson 1994a: 13), Switzerland (Ruoss 1991: 213), Ukraine (Kondratyuk 1999: 36); ASIA: Russia: Putorana Plateau (Zhurbenko and Hafellner 1999: 75), Taymyr Peninsula (Zhurbenko 1996: 226, Zhurbenko and Santesson 1996: 155); N. AMERICA: (Egan 1991: 397, Esslinger and Egan 1995: 505), Canada (Hawksworth 1981: 37), Greenland (Alstrup and Hawksworth 1990: 47), U.S.A.: Arizona (Triebel et al. 1991: 278) and S. AMERICA: Chile (Diederich and Christiansen 1994: 60).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Krušné hory Mts., Distr. Karlovy Vary, near Nejdek, in the village of Horní Blatná, on *Aesculus hyppocastanum*, on *Lecanora conizaeoides*, 870 m, MTB 5542; 4.IX.1999, coll. J. K. (PRM 760476). - Šumava Mts., Distr. Klatovy, in the village of Horská Kvilda, on *Parmelia saxatilis*, 1000 m, MTB 6946; 2.VI.1989, coll. J. H. and A. Vězda (PRM 892648).

Central Bohemia, Distr. Rakovník, Podbořánky, in a forest at margin of a peat bog, on a stump of *Betula verrucosa*, on *L. conizaeoides*, 490 m, MTB 5946; 3.VII.1999, coll. J. K. and P. K. (PRM 758606, specimen of *Lichenoconium erodens*). - Distr. Rakovník, Krty, Krtské skály nature reserve, on a granite boulder, on *P. saxatilis*, 505 m, MTB 5946; 17.VI.1995, coll. J. H. (PRM 892454). - Distr. Rakovník, Bukov, on a slope of Liščí skály hill, on wooden post (*Quercus*), on *L. conizaeoides* (ap.), 390 m, MTB 5847; 15.XII.1996, coll. J. H. and P. K. (PRM 758272). - Distr. Rakovník, Oráčov, on the S slope of Lovíč hill, on an old decorticated fallen branch, on *L. conizaeoides*, ca. 450 m, MTB 5847; 13.III.1999, coll. J. K. and P. K. (PRM 758461). - Distr. Rakovník, between the villages of Kněževes and Chrášťany, on the bark of *Populus nigra*, on *L. conizaeoides*, 370 m, MTB 5847; 13.II.1999, coll. J. K. and P. K. (PRM 758332). - Distr. Rakovník, in the village of Přílepy, on a fence, on *L. conizaeoides*, 360 m, MTB 5847; 16.II.1997, coll. J. H. and P. K. (PRM 890795). - Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on shale rocks, on *P. saxatilis* (th.), 435 m, MTB 5947; 13.X.1996, coll. J. H. and P. K. (PRM 892522). - Distr. Příbram, Brdy Mts., in the valley of Třítrubecký potok brook, on the W slope of U spáleného dubu hill, on fallen twigs of *Picea abies*, on *L. conizaeoides*, ca. 640 m, MTB 6348; 21.IX.1997, coll. Š. Bayerová, det. J. K. (hb. Bayerová). - Distr. Příbram, Brdy Mts., on a slope of Mt. Třemšín, on a quartzite boulder, on *P. saxatilis*, 810 m, MTB 6448; 24.IX.1998, coll. J. K. (PRM 758518). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on a stony scree in a mixed forest, on rhyolite, on *P. saxatilis* (th.), 280 m, MTB 5949; 21.II.1998, coll. P. K. and J. K. (PRM 892541). - Ibid.: 21.VIII.1998 (PRM 758517). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka river, on rhyolite, on *L. conizaeoides* (ap.), 250 m, MTB 5949; 28.IX.1997, coll. J. K. (PRM 891210). - Distr. Rakovník, BR Křivoklátsko, U Eremita nature reserve, on a shale rock, on *P. saxatilis* (th.), 300 m, MTB 5949; 7.VIII.1997, coll. J. K. and P. K. (PRM 892445). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W slope of Baranik hill, on rhyolite stone, on *P. saxatilis*, 360 m, MTB 5949; 11.X.1998, coll. J. K. and P. K. (PRM 758325). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, in the valley of the Šárecký potok stream, between rocks in the "soutěska Džbán" gulch, at the foot of the N steep wall of the rocks of Šestákova skála hill, on lydite, on *P. saxatilis*, ca. 250 m, MTB 5951; 27.XI.1998, coll. J. K. and P. K. (PRM 892628). - The city of Praha, Troja, Havránka nature reserve, on twigs of *Calluna vulgaris*, on *L. conizaeoides*, 250 m, MTB 5852; 15.XI.1997, coll. J. K. (PRM 892514). - Distr. Kolín, Louňovice, NNR Voděradské bučiny, near the Vyžlovský rybník lake, on the bark of *Quercus robur*, on *L. conizaeoides* (ap.), 400 m, MTB 6054; 7.V.1996, coll. J. H. (PRM

891394). - Distr. Benešov, below slope of Velký Blaník hill, on the bark of *Quercus robur*, on *L. conizaeoides* (ap.), 490 m, MTB 6355; 24.VI.1995, coll. J. H. (PRM 891440). - Distr. Nymburk, near Rožďalovice, near the Bučický rybník lake, on the bark of *Quercus robur*, on *L. conizaeoides*, ca. 230 m, MTB 5657; 20.IX.1997, coll. J. K. (PRM 891193).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Černý Kříž, at a margin of the Mrtvý luh peat bog, on twigs of *Populus tremula*, on *Lecanora carpinea*, 740 m, MTB 7149; X.1998, coll. M. Hecklau and V. Wirth (hb. Wirth 32189, together with *Arthonia* sp.).

Northern Bohemia, Lužické hory Mts., Distr. Děčín, near Dolní Podluží, on the slope of Křížová hora hill, on the bark of *Pinus sylvestris*, 590 m, MTB 5153; 2.II.1996, coll. J. H. (PRM 758716). - Distr. Liberec, Jizerské hory Mts., NNR Štolpichy, in the valley of the Velký Štolpich brook, on a decaying stump of *Picea*, on *L. conizaeoides* (ap.), ca. 800 m, MTB 5157; 12.VI.1999, coll. J. K. and P. K. (PRM 758570). - Distr. Liberec, Jizerské hory Mts., Ptačí kupy nature reserve, on the NW slope of Mt. Ptačí kupy, on a dead standing decorticated trunk of *Picea*, on *L. conizaeoides* (ap.), ca. 950 m, MTB 5157; 13.VI.1999, coll. J. K. and P. K. (PRM 758571).

Western Moravia, Distr. Jihlava, 2 km SW of the village of Plandry, near the confluence of the Bělokámenský potok brook and the Jihlava River, on the bark of *Acer pseudoplatanus*, on *Lecanora chlarotera*, 480 m, MTB 6559; 21.VIII.1998, coll. J. K. and P. K. (PRM 892466). - Distr. Žďár n. Sázavou, near Velká Bíteš, on *Lecanora* cf. *albella*, 450 m, MTB 6762; VIII.1963, coll. A. Vězda, (hb. Vězda, as *Coniothyrium lecanoracearum*, rev. D. Hawksworth as *L. lecanoracearum*).

Additional specimen examined: SLOVAK REPUBLIC: Northern Slovakia, Nízke Tatry Mts., on the N slope of Mt. Orlová, on shale, on *Lecanora polytropa* s. l., 1750 m, 13.VIII.1967, coll. I. Pišút, det. J. K. (BRA 78).

Specimens examined for comparison:
Homostegia piggotii (BERK. et BROOME) P. KARST., Santesson: Fungi lichenicoli exs. 12 (hb. Vězda).
Sphaerellothecium parmeliae DIEDERICH et ETAYO, Santesson: Fungi lichenicoli exs. 288, 289 (hb. Vězda).

Lichenoconium pyxidatae (OUDEM.) PETR. et SYD.

Repert. spec. nov. Regni veg., Beih. 42: 435 (1927)
Pl. 4, fig. 4

Ref. CR: Keissler (1933: 390).

Sel. lit.: Hawksworth (1977b: 184-185, Pl. 27, figs E-H and 1981a: 34, 36-37, fig. 18F).

Host lichens in CR: *Cladonia chlorophaea, C. coniocraea, C. furcata, C. pocillum, C. pyxidata, C. subulata.*

Other known hosts: *Cladonia arbuscula, C. cenotea, C. fimbriata, C. incrassata, C. ramulosa.*

Observation: The species is well characterized and identifiable by its large elongated black conidiomata of 80-130 µm and small, slightly truncate conidia of 2.5-3.5 µm which are among the smallest in this genus. In full maturity, the pycnidia are open very widely. They usually occur on podetia of *Cladonia* species. *Lichenoconium erodens* which also occurs on *Cladonia* sp. div. is distinguished by much smaller conidiomata of 30-60 µm diam. and a black margin of the infection spots. Its conidia are nearly globose and the conidiogenous cells are only of 4-6 µm long. *Lichenoconium erodens*, when a parasite on *Cladonia* spp., occurs usually on phyllocladia of *Cladonia* sp. in contrast to *L. pyxidatae* which prefers podetia.

In a single specimen (listed below) the species was found in a mixed infection, together with *Taeniolella beschiana.*

Distribution: According to Hawksworth (1981a: 36), the species is known from EUROPE: in Austria, British Isles, Denmark, France, Germany, the Netherlands and Sweden.

Other records known from EUROPE: Austria (Berger and Türk 1994: 167, Hafellner and Türk 1995: 616), Germany (John 1990: 174), Norway (Hafellner 1993: 754, Santesson 1993: 130, Holien and Tønsberg 1994: 72), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 155), Spain (Calatayud et al. 1995: 372) and from N. AMERICA: (Esslinger and Egan 1995: 505), Arizona (Triebel et al. 1991: 278).

Specimen (not seen): Moravia, Distr. Havlíčkův Brod, coll. F. Schank (?).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, ca. 1.5 km S of the Milíčov, at a margin of a quarry in *Cladonia* covers, on *Cladonia furcata*, 360 m, MTB 6047; 8.V.1999, coll. J. K. and P. K. (PRM 758565, 758595). - Distr. Rakovník, in the village of Přílepy, on a sandstone rock, on *Cladonia pocillum*, 360 m, MTB 5847; 16.II.1997, coll. J. K. (PRM 890793). - Distr. Rakovník, near Nesuchyně, in a quarry, on sandy soil, on *Cladonia pyxidata*, ca. 400 m, MTB 5848; 28.X.1996, coll. J. H. and P. K. (PRM 889673). - Distr. Rakovník, BR Křivoklátsko, U Eremita nature reserve, on soil covering of steep shaly rocks, on *Cladonia chlorophaea* s. l., 300 m, MTB 5949; 25.IV.1997, coll. J. K. and P. K. (PRM 892505, specimen of *Taeniolella beschiana*) - Distr. Kolín, Louňovice, NNR Voděradské bučiny, near Vyžlovský rybník lake, on a stump, on *Cladonia coniocraea* (pod.), 400 m, MTB 6054; 22.XI.1997, coll. I. Kazdová, det. J. K. (PRM 892167).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, Dobrá, on a humus on siliceous boulder, on *Cladonia subulata*, 750 m, MTB 7148; 25.III.1995, coll. Z. Palice, det. J. K. (PRM 758327, hb. Palice).

Lichenoconium usneae (ANZI) D. HAWKSW.

Persoonia 9: 185 (1977)

Syn.: *Lichenoconium lecanoracearum* (VOUAUX) PETR. et SYD., Repert. spec. nov. Regni veg., Beih. 42: 434 (1927)
Coniothyrium lecanoracearum VOUAUX, Bull. Soc. mycol. France 30: 293 (1914) (nom. illegit.)

Ref. CR: Hawksworth (1981a: 37), Kocourková (1999: 184).

Sel. lit.: Hawksworth (1977b: 185-190, Pl. 28, figs A-K; 1981: 37, fig. 18G).

Host lichens in CR: *Bryoria capillaris, Diploschistes scruposus, Neofuscelia pulla, N. verruculifera, Ramalina pollinaria, Xanthoparmelia conspersa, X. somloënsis.*

Other known hosts: *Abrothallus usneae, Anaptychia ciliaris, Allantoparmelia alpicola, Bryoria fuscescens, Bryocaulon divergens, Cetraria sepincola, Cladonia arbuscula, C. botrytes, C. cariosa, C. gracilis, Flavoparmelia caperata, Hypocenomyce scalaris, Hypogymnia physodes, Lecanora pacifica, L. symmicta, Letharia vulpina, Melanelia exasperata, M. fuliginosa, M. glabra, M. hepatizon, M. olivacea, M. panniformis, M. septentrionalis, Neofuscelia loxodes, Parmelia omphalodes, P. sulcata, P. saxatilis, Parmelina carporrhizans, Physcia aipolia, P. stellaris, Physconia distorta, Punctelia rudecta, Ramalina* cf. *baltica, R. calicaris, R. fastigiata, R. farinacea, R. fraxinea, R. siliquosa, R. subgeniculata, Rhizoplaca melanophthalma, Thamnolia vermicularis, Usnea filipendula* agg., *Usnea* cf. *florida, U. rigida* var. *neglecta.*

Diploschistes scruposus is reported here as a new host.

Observation: The symptoms of infection caused by *Lichenoconium usneae* vary according to different hosts. Foliose lichens, typically become extensively bleached or may become orange, however, they lack the black circles surrounding the infected spots caused by *Lichenoconium erodens.*

Moreover, *L. usneae* contrary to *L. erodens* predominanly infects apothecia in foliose lichens. However, *Lichenoconium usneae* collected by Vězda on sterile thallus of *Xanthoparmelia somloënsis* develops black borders, the size of conidiomata fits *L. erodens*, but other features, such as the conidia and conidiogenous cells size correspond to *L. usneae*. In the fruticose *Ramalina pollinaria* only the tips of branches are infected and the bleached parts are bordered by a dark red-brown line. The host thallus of *Diploschistes scruposus* was nearly dead. Changes in colour may also have been caused by *Arborillus llimonae*, another parasite growing in a mixed infection of that host.

Distribution: EUROPE: Austria (Hafellner et al. 1992: 114, Hawksworth 1977b: 187, 1981a: 37, Obermayer 1993: 143, Türk and Poelt 1993: 70, Santesson 1994b: 14, Hafellner and Türk 1995: 616, Hafellner 1998: 157, Hofmann et al. 1998: 160), British Isles (Hawksworth 1977b: 186, 1981a: 37), Denmark (Hawksworth 1977b: 188, 1981a: 37; Alstrup et al. 1995: 88, Alstrup and Svane 1998: 24), Denmark: Faeroe Islands (Alstrup et al. 1994: 95), France (Hawksworth 1981: 37, Bricaud et al. 1992: 88, Diederich and Christiansen 1994: 61), France: Corsica (Hafellner 1994a: 225), Germany (Hawksworth 1981: 37, John 1990: 174), Ireland (Hawksworth 1977b: 188), Italy (Hawksworth 1977b: 188, 1981a: 37), Luxembourg (Diederich 1989: 245), Norway (Hawksworth 1977b: 187, 1981a: 37; Hafellner 1993: 754, Santesson 1993: 130), Norway: Spitsbergen (Alstrup and Olech 1993: 35), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 155); Slovak Republic (1977b: 188), Spain (Hawksworth 1977b: 188, 1981a: 37; Alvarez and Carballal 1992: 364, Etayo and Breuss 1996: 226), Sweden (Hawksworth 1981: 37, Alstrup 1991: 66, Santesson 1993: 130, 1994a: 13, Thor 1993: 112, Santesson and Tønsberg 1994: 299), Switzerland (Hawksworth 1977b: 187, 1981a: 37), Ukraine (Hawksworth 1992: 99, Kondratyuk et al. 1998b: 95, Kondratyuk 1999: 36), former Yugoslavia (Hawksworth 1981: 37); N. AFRICA: Spain: Canary Islands (Hawksworth 1977b: 188, Hafellner 1995c: 50); N. AMERICA: (Esslinger and Egan 1995: 505), Canada: British Columbia (Hawksworth 1977b: 185, Alstrup and Cole 1998: 225), Alberta (Hawksworth 1981: 37), Greenland (Alstrup and Hawkswerth 1990: 47), U.S.A.: Missouri, New Jersey (Hawksworth 1977b: 187, 1981a: 37) and ANTARCTICA: (Olech and Alstrup 1996: 167).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Rokycany, BR Křivoklátsko, near Skryje, on a slope of Strážov hill, on stony scree, on rhyolite, on *Xanthoparmelia conspersa* (ap.), ca. 465 m, MTB 6048; 28.VI.1997, coll. J. K. and P. K. (PRM 891182, together with *Abrothallus caerulescens* and *Lichenostigma cosmopolites*).

Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on shale rocks, on *Neofuscelia pulla* (th., ap.), 435 m, MTB 5947; 26.I.1997, coll. J. H. and P. K. (PRM 892519). - Distr. Rakovník, BR Křivoklátsko, Krakovec, near the Krakovec castle, on shale rocks, on *X. conspersa* (th.), 430 m, MTB 5947; 20.VI.1999, coll. J. K. (PRM 758572). - Distr. Rakovník, BR Křivoklátsko, NNR Velká Pleš, above the Berounka River, on the W slope of Velká Pleš hill, on rocks, on rhyolite, on *Ramalina pollinaria* (th.), 490 m, MTB 6048; 1.VI.1996, coll. J. H. (PRM 890811). - Distr. Rakovník, BR Křivoklátsko, ca. 3.5 km SE of Rakovník, near Dolní Chlum, near a railway, on shale, on *X. conspersa* (ap.), 300 m, MTB 5948; 3.I.1998, coll. J. K. and P. K. (PRM 892100). - Distr. Rakovník, BR Křivoklátsko, below the top of Vosník hill, on *Quercus*, on *R. pollinaria*, 380 m, MTB 6048; 23.V.1998, coll. J. K. (PRM 892101). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W slope of Baraník hill, on rhyolite, on *X. conspersa*, 360 m, MTB 5949; 11.X.1998, coll. J. K. and P. K. (PRM 758506). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, in a mixed forest on the W exposed slope, on shale, on *Neofuscelia verruculifera* (th.), 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K. (PRM 892104). - Ibid.: on *Diploschistes scruposus* (PRM 758493, specimen of *Arborillus llimonae*). - Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rock, on *X. somloënsis* (ap.), 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 758514, specimen of *Stigmidium xanthoparmeliarum*, together with *Weddellomyces xanthoparmeliae*). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, on steep slope of Dívčí skok hill, on lydite rocks, on *X. conspersa* (ap.), ca. 300 m, MTB 5951; 27.XI.1998, coll. J. K. and P. K. (PRM 892630).

Southern Bohemia, Šumava Mts., Distr. Prachatice, České Žleby, Mt. Spáleniště, on a fallen trunk of *Fraxinus excelsior*, on *Bryoria capillaris*, 900 m, MTB 7148; 24.IX.1999, coll. J. Holec, det. J. K. (PRM 759348). - Distr. Jindřichův Hradec, on the bank of the Nový Vdovec lake, on the bark of *Quercus robur*, on *R. pollinaria*, 350 m, MTB 6955; 12.VII.1996, coll. J. H. (PRM 758530).

Western Moravia, Distr. Žďár n. Sázavou, between Zahradiště and Krásněves, on the bark of *Acer platanoides*, on *R. pollinaria*, 550 m, MTB 6561; 5.VII.1997, coll. J. K. (PRM 891179). - Distr. Třebíč, near Náměšť nad Oslavou, on steep slope above the Oslava River, near the Lamberk ruin, on granulite, on *X. conspersa* (ap.), ca. 350 m, MTB 6863; 7.X.1998, coll. J. K. (PRM 758294, specimen of *Sclerococcum* sp.). - Distr. Třebíč, near the confluence of the rivers Chvojnice and Oslava, on rocks below the Ketkovický hrad castle, on granulite, on *X. conspersa* (ap.), 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 758331).

Southern Moravia, Distr. Znojmo, the Podyjí NP, Vranov n. Dyjí, ca. 4 km SE of the village, on the top of a ridge above the Dyje River, on *X. conspersa* (ap.), 490 m, MTB 7160; 4.IX.1998, coll. J. K. (PRM 758508). - Distr. Znojmo, the Podyjí NP, Vranov n. Dyjí, ca. 4 km SE of the village, on top of ridge above the Dyje River, on shale rocks, on *Neofuscelia pulla* (ap), 490 m, MTB 7160; 4.IX.1998, coll. J. K. (PRM 892554). - Ibid.: (PRM 758616, specimen of *Weddellomyces xanthoparmeliae*, together with *Abrothallus caerulescens* and *Lichenostigma cosmopolites*). - Distr. Znojmo, The Podyjí NP, the Býčí skála rock, on granite, on *N. pulla* (th.), 310 m, MTB 7161; 5.VI.1998, coll. J. K. (PRM 892644). - Distr. Brno, Veverská Bítýška, in the valley of the Svratka River, at the Veveří castle, on siliceous rock, on *X. somloënsis* (th.), 280 m, MTB 6765; 10.II.1974, coll. A. Vězda (BRA 146, specimen of *Abrothallus caerulescens*).

Lichenoconium xanthoriae M. S. CHRIST.
Friesia 5: 212 (1956)

Ref. CR: Hawksworth (1977b: 191, 1981a: 37).

Sel. lit.: Christiansen (1956, figs 1, 2), Hawksworth (1977b: 185-190, Pl. 29, figs D, F-J; 1981: 37, fig. 18H).

Host lichens in CR: *Physcia aipolia, P. tenella, Xanthoria parietina, X. polycarpa.*

Other known hosts: *Caloplaca holocarpa* s. l., *Cetraria sepincola, Cetrelia olivetorum* s. l., *Melanelia olivacea, Teloschistes chrysophthalmus, Tuckermannopsis* sp., *Xanthoria candelaria, X. elegans.*

Observation and notes: *Lichenoconium xanthoriae* is a parasitic species in the apothecia of hosts. Apothecia and also part of thallus surrounding them become black, if heavily infected. The species usually occurs on *Xanthoria* spp., but rarely the infection can occur on *Physcia* spp. or *Caloplaca*. In the specimen collected by Wirth (n. 32191), *Lichenoconium xanthoriae* grew on both *Physcia aipolia* and *Xanthoria polycarpa* growing side by side on a thin branch of *Salix*. Conidiomata of *L. xanthoriae* in this specimen are much larger (up to 200 µm diam.) than those of *Lichenoconium usneae* reported by Hawksworth (1977b: 189) on closely related *Physcia*

aipolia. Lichenoconium lichenicola (P. KARST.) PETR. et SYD. also may occur on *P. aipolia*, but it is distinguished by having larger conidia [(4-)6-8(-9) x 3-4(-6) µm], which are tapered towards their base and they are truncate. Although, we found several conidia of this form and similar size (7-8 x 3.5 µm) in the specimens listed below, the conidiogenous cells always corresponded to the shorter ones, of *Lichenoconium xanthoriae*. *L. xanthoriae* always produces enormous mass of conidia in contrast to *L. usneae*. Unfortunately, we did not examine the variability of conidia of *L. lichenicola*.

Distribution: EUROPE: Austria (Wittmann and Türk 1987: 391, Berger and Türk 1993a: 184, Obermayer 1993: 143, Türk and Poelt 1993: 70), British Isles (Hawksworth 1977b: 191, 1981a: 37; Hawksworth and Minter 1980: 572, Kondratyuk and Kolomiets 1997: 46), Denmark (Christiansen 1956: 215, Hawksworth 1977b: 191, 1981a: 37), Estonia (Jüriado et al. 1999: 60), Germany (John 1990: 174, Hawksworth and Diederich 1991: 86, Scholz 1995: 389), Luxembourg (Diederich et al. 1991: 29), Sweden (Christiansen 1956: 215, Hawksworth 1977b: 191, 1981a: 37; Santesson 1986: 12, 1993: 130; Thor 1993: 112), Ukraine (Kondratyuk and Kolomiets 1997: 46, Kondratyuk et al. 1998b: 95, Kondratyuk 1999: 36); N. AFRICA: Spain: Canary Islands (Etayo 1996a: 101, Hafellner 1999a: 11); N. AMERICA: (Esslinger and Egan 1995: 505), Mexico (Triebel et al. 1991: 278) and S. AMERICA: Chile (Kondratyuk and Kolomiets 1997: 46).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Borová Lada, by a road, on the bark of *Acer pseudoplatanus*, on *Physcia tenella*, 900 m, MTB 7047; 9.VI.1995, coll. J. H. (PRM 758295, together with *Athelia* sp.; 758296, specimen of *Athelia* sp.). - Šumava Mts., Distr. Prachatice, near Horní Vltavice, near the Teplá Vltava River, on twigs of *Sorbus*, on *Xanthoria polycarpa* (ap.), 880 m, MTB 7048; 11.V.1996, coll. J. H. (PRM 891192). - Šumava Mts., Distr. Prachatice, Černý Kříž settlement, on twigs of *Salix* sp., on *Xanthoria polycarpa* (ap. and th.), 745 m, MTB 7149; 19.I.1996, coll. Z. Palice, det. J. H. (hb. Palice). - Šumava Mts., Distr. Prachatice, Černý Kříž, margin of the Mrtvý luh peat bog, on thin twigs of *Salix*, on *Physcia stellaris* and *Xanthoria polycarpa*, 740 m, MTB 7149; 18.X.1998, coll. V. Wirth and M. Hecklau (hb. Wirth 32191). - Ibid.: on *Xanthoria polycarpa*, 740 m, MTB 7149; X.1998, coll. and det. M. Hecklau (hb. Wirth 32187, specimen of *Unguiculariopsis thallophila*).

Western Moravia, Distr. Třebíč, Rouchovany, in the valley of Rouchovanka book near Nové Dvory, on the bark of *Populus*, on *Xanthoria parietina* (ap. and th.), MTB 6962; VIII.1971, coll. A. Vězda (hb. Vězda, BRA 105c).

Central Moravia, Distr. Prostějov, near the village of Hvozd nearby Litovel, on *Xanthoria parietina* (ap. and th.), 500 m, MTB 6367; 3.IX.1962, coll. A. Vězda (hb. Vězda, BRA 58).

Lichenodiplis DYKO et D. HAWKSW.

Lichenologist 11: 51 (1979)

Although three lichenicolous species are known in this coelomycetous genus, only one is known from the Czech Republic.

Lichenodiplis lecanorae (VOUAUX) DYKO et D. HAWKSW.

Lichenologist 11: 52 (1979)

Syn.: *Diplodia lecanorae* (VOUAUX) KEISSL., Ark. Bot. 18/16: 10 (1923)

Ref. CR: Keissler (1923: 10, 1925: 165, both as *Diplodia lecanorae*).

Sel. lit.: Hawksworth and Dyko (1979: 52, Pl. 1A, B; figs 1A-C), Hawksworth (1981: 38), Kalb and Hafellner (1992: 70).

Host lichens in CR: *Lecanora saligna, Melanelia glabra, Ochrolechia turneri, Strangospora pinicola.*

Other known hosts: *Caloplaca aetnensis, C. caesiorufa, C. cerina, C. cerinella, C. ferruginea, C. flavorubescens, C. flavovirescens, C. herbidella, C. holocarpa, C. lactea, C. pyracea, C. subochracea, C. vitellinula, Caloplaca* sp., *Diploschistes scruposus, Evernia prunastri, Imshaugia aleurites, Lecania naegelii, Lecanora albella, L. chlarotera, L. circumborealis, L. confusa, L. dispersa, L. expallens, L. polytropa, L. saligna* var. *sarcopsis, L. varia, Lecidella elaeochroma, Lecidea enteroleuca, Lecidea* sp., *Micarea nitschkeana, M. spododes, Mycoblastus affinis, Ochrolechia szatalaensis, Pertusaria albescens, P. heterochroa, P.* cf. *leioplaca, Pertusaria* sp., *Schismatomma decolorans, S. pitardii, Tephromela atra.*

Observation: With its brown conidiomata this species is macroscopically (with hand-lens) distinguishable from several *Lichenoconium* species (especially *Lichenoconium lecanorae*), and also from *Vouauxiella lichenicola* (LINDS.) PETR. et SYD. which all form black conidiomata. In addition, *V. lichenicola* has usually much more open conidiomata, which sit at thalline margin of its hosts' apothecia.

Distribution: EUROPE: Austria (Hawksworth and Dyko 1979: 56, Türk and Wittmann 1987: 101, Mayrhofer et al. 1989: 230, Hafellner et al. 1992: 114, Berger and Türk 1993a: 184, Obermayer 1993: 143, Türk and Poelt 1993: 70, Santesson 1994b: 15, Hafellner and Mauer 1994: 124), British Isles (Hawksworth 1981: 38), Denmark (Hawksworth and Dyko 1979: 56, Hawksworth 1981: 38, Santesson 1994a: 13, Alstrup et al. 1995: 88), Germany (Hawksworth 1981: 38, John 1990: 174), France (Hawksworth and Dyko 1979: 56; Hawksworth 1981: 38, Bricaud et al. 1992: 88), France: Corsica (Hafellner 1994a: 225), Italy: Marettimo (Nimis et al. 1994: 256), Luxembourg (Diederich et al. 1988: 23, Diederich 1989: 247), Norway (Santesson 1993: 130, 1998: 7), Russia: Novaya Zemlya (Hawksworth 1981: 38, Zhurbenko and Santesson 1996: 155), Slovenia (Grube et al. 1995: 194, Mayrhofer et al. 1996: 125, Grube et al. 1998: 187), Spain (Hawksworth and Dyko 1979: 56; Hawksworth 1981: 38, Calatayud et al. 1995: 373, Etayo and Breuss 1996: 226), Sweden (Keissler 1923: 10, as *Diplodia lecanorae*; Santesson 1993: 130), Ukraine (Kondratyuk et al. 1998b: 95, Kondratyuk 1999: 36); ASIA: Cyprus (Litterski and Mayrhofer 1998: 63), N. AFRICA: Morocco (Hawksworth 1981: 38, Egea 1996: 106), Portugal: Madeira (Kalb and Hafellner 1992: 70, Hafellner 1995c: 50), Spain: Canary Islands (Triebel et al. 1991: 279), Sweden (Hawksworth and Dyko 1979: 56; Hawksworth 1981: 38); N. AMERICA: (Esslinger and Egan 1995: 505), Greenland (Triebel et al. 1991: 279), U.S.A.: Arizona (Triebel et al. 1991: 279) and S. AMERICA: Argentina (Triebel et al. 1991: 279).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, near the village of Zderaz and settlement Čížkov, Jewish cemetery, on the bark of *Fraxinus excelsior*, on *Lecanora saligna* (ap., th.) and *Strangospora pinicola* (ap.), 385 m, MTB 5847; 20.IV.1996, coll. J. H. and P. K. (PRM 758283). - Distr. Rakovník, 2 km NE of the village of Hořovičky, in the valley of the Očihovecký potok brook, on twigs of *Sambucus nigra*, on *Lecanora saligna*, 360 m, MTB 5847; 23.I.2000, coll. J. K. and P. K. (PRM 760468). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, the Týřov castle above the Berounka River, on the bark of *Fraxinus excelsior*, on *Lecanora saligna* (ap.), 290 m, MTB 6048; 8.VIII.1999, coll. J. K. and P. K. (PRM 759354). - Distr., Příbram, at S margin of the village of Roželov, on wooden fence, on *Lecanora saligna*, ca. 580 m, MTB 6448; 26.X.1997,

coll. Š. Bayerová, det. J. K. (PRM 892037). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, Dívčí skok, on rocks with *Calluna*, on a fallen decorticated trunk of *Sorbus aucuparia*, on *Lecanora saligna*, ca. 300 m, MTB 5951; 27.XI.1998, coll. J. K. and P. K. (PRM 892631).

Eastern Moravia, Distr. Kroměříž, Hostýnské vrchy hills, Rajnochovice, in the valley of the Rosocký potok stream, on the bark of *Tilia* sp., on *Ochrolechia turneri* (th.), 500 m, MTB 6572; 12.V.1995, coll. Z. Palice (PRM 890808).

Southern Moravia, Bílé Karpaty Mts., Starý Hrozenkov, near Žitková-Pitínské paseky, between farms, on the bark of *Juglans regia*, on *Melanelia glabra* (th.), 530 m, MTB 7073; 9.V.1997, coll. M. Hájek, det. J. K. (hb. M. Hájek, PRM 891438).

Lichenopeltella HÖHNEL

Sitzungsber. Acad. Wiss. Wien, Math.-Naturwiss. Kl. Abt. 1 (128): 553 (1919)

The genus belonging to *Microthyriaceae* currently comprises twenty seven lichenicolous and saprobic fungi (Aptroot 1998, Aptroot et al. 1997, Santesson 1998).

Lichenopeltella peltigericola (D. HAWKSW.) R. SANT.

Lichens Lichenicol. Fungi Sweden Norway: 131 (1993)

Bas.: *Actinopeltis peltigericola* D. HAWKSW., Notes Roy. Bot. Garden Edinburgh 40: 375 (1982)
Syn.: *Micropeltopsis peltigericola* (D. HAWKSW.) KIRK et SPOONER, Mycol. Res. 94: 228 (1990)

Ref. CR: None.

Sel. lit.: Spooner and Kirk (1990: 228, fig. 1B, as *Micropeltopsis peltigericola*), Martínez and Hafellner (1998: 284-285).

Host lichen in CR: *Peltigera praetextata.*

Other known hosts: *Peltigera degenii, P. horizontalis, P. leucophlebia, P. membranacea, P. polydactylon, P. rufescens.*

Observation: Both collections were made in shaded scree on *Peltigera praetextata* growing over mossy stones or boulders. The ascomata were found in a large quantity on the underside of the thallus, especially along the veins of the host.

Distribution: Mostly according to Martínez and Hafellner (1998: 284-285): EUROPE: Andorra (Martínez and Hafellner 1998: 285), Austria (Hafellner 1994b: 11, Hafellner and Türk 1995: 617, Hoffmann et al. 1995: 232, Hafellner 1999b: 518), Belgium (Goffinet et al. 1994: 200), British Isles (Hawksworth 1982a: 375, 1983: 12; Spooner and Kirk 1990: 228), Luxembourg (Diederich 1986: 6, Diederich et al. 1988: 33, Diederich et al. 1991: 6, all as *Actinopeltis peltigericola;* Goffinet et al. 1994: 200), the Nethernands (Boom et al. 1994: 94), Norway (Holien and Tønsberg 1994: 72), Portugal, Spain (Martínez and Hafellner 1998: 285), Portugal: Madeira (Kalb and Hafellner 1992: 74, as *Micropeltopsis peltigericola*; Hafellner 1995c: 50), Sweden (Santesson 1984: 3, as *Actinopeltis peltigericola*, 1993: 131), Ukraine (Miądlikowska 1996: 132, Kondratyuk 1999: 36); ASIA: Cyprus (Hawksworth 1982: 375, 377); N. AFRICA: Spain: Canary Islands (Martínez and Hafellner 1998: 285); N. AMERICA: (Esslinger 1998), Canada: British Columbia (Alstrup and Cole 1998: 225) and AUSTRALASIA: New Guinea (Aptroot et al. 1997: 97).

Specimens examined: CZECH REPUBLIC: Central Bohemia, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on stony scree, on rhyolite, on *Peltigera praetextata*, 310 m, MTB 5949; 5.X.1996, coll. J. H. (PRM 890782, as *Actinopeltis peltigericola*).

Southern Moravia, Distr. Znojmo, the Podyjí NP, Vranov n. Dyjí, ca. 4 km SE of the village, on the NE slope of a ridge above the Dyje River, on a shaded quartzite boulders, over mosses, on *Peltigera praetextata*, 350 m, MTB 7160; 4.IX.1998, coll. J. K. (PRM 892506).

Lichenostigma HAFELLNER

Herzogia 6: 301 (1982)

The genus *Lichenostigma* comprises fungi that are characterized by asci scattered within the pseudoparenchyma of the stromatic ascoma. The superficially similar genus *Lichenothelia* D. HAWKSW. is distinguished mainly by having asci forming a hymenium-like layer and by presence of filiform interascal filaments. Both genera belong to the family *Lichenotheliaceae*, which is regarded to belong to Dothideales s. ampl.

Lichenostigma cosmopolites HAFELLNER et CALATAYUD

Mycotaxon 72: 108 (1999)

Syn.: *Echinothecium reticulatum* auct. pro parte.

Ref. CR: Hafellner and Calatayud (1999: 111), Kocourková (1999: 183, as *Echinothecium reticulatum*).

Sel. lit.: Hafellner and Calatayud (1999: 107-114, fig.1).

Host lichens in CR: *Xanthoparmelia conspersa, X. somloënsis.*

Other known hosts: *Xanthoparmelia chlorochroa, X. coloradoensis, X. coreana, X. cumberlandia, X. dichotoma, X. filarszkiana, X. isidiigera, X. leonora, X. maricopensis, X. mexicana, X. microspora, X. multipartia, X. protomatrae, X. pseudohypoleia, X.* cf. *standaertii, X. subdistorta, X. substrigosa, X. succedans, X. tasmanica, X. tinctina, X. tuberculiformis, X. ulcerosa, X. weberi, X. wildae, X. wyomingica.*

Note: *Lichenostigma cosmopolites* has been recently described as a new species (Hafellner and Calatayud 1999). Until the species was described, this very widespread and common fungus on *Xanthoparmelia* spp. had been known under the name *Echinothecium reticulatum* ZOPF. However, *E. reticulatum* was described for a fungus occurring on *Parmelia saxatilis*, characterized by having superficial hyphae and by ascomata provided with septate seta-like hyphae. *Lichenostigma cosmopolites* is distinguished mainly by having plurihyphal superficial strands and ascomata lacking seta-like hyphae. *Echinothecium reticulatum* has recently been distinguished to be restricted to *Parmelia* s. str. (Hafellner 1998: 164-165), probably only to *Parmelia saxatilis* group.

Ecology: The species forms very dense net of mycelium on host thalli. Consequently, the usually heavily infected central part of the host thallus becomes dark grey and later necrotic and destroyed.

In the Czech Republic the species is very often found in mixed infections with *Abrothallus caerulescens, Lichenoconium usneae, Stigmidium xanthoparmeliarum* and *Weddel-*

lomyces xanthoparmeliae. It is very common in this country, especially in xerophytic regions and in warm sites in mesophytic regions where it occurs in lowlands on sun exposed or partly shaded siliceous rocks.

Distribution: According to Hafellner and Calatayud (1999), the species is very widely distributed in extratropical regions of both hemispheres, in temperate regions mainly in the lowlands, in tropical regions only from mid altitude levels upwards. Both authors examined specimens from EUROPE: Austria, Czech Republic, France: Corsica, Italy, Macedonia, Norway, Spain and Switzerland; ASIA: Georgia, Japan, Nepal; AFRICA: Canary Islands: Tenerife, El Hierro; S. AFRICA: Transvaal; N. AMERICA: Canada: British Columbia, Ontario; U.S.A.: Arizona, California, Colorado, Virginia; Mexico; S. AMERICA: Brazil, Chile, Uruguay, Venezuela and from AUSTRALASIA: Australia: Australian Capital Territory, New South Wales, S. Australia, W. Australia. *L. cosmopolites* has been also reported from Belgium and Luxembourg (Sérusiaux et al. 1999: 46).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Rokycany, BR Křivoklátsko, near Skryje, on a slope of Strážov hill, on stony scree, on rhyolite, on *Xanthoparmelia conspersa*, ca. 465 m, MTB 6048; 28.VI.1997, coll. J. K. and P. K. (PRM 891182, 892637).

Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on shale rocks, on *X. conspersa*, 435 m, MTB 5947; 17.IX.1997, coll. P. K. (PRM 891165). - Ibid.: on *X. conspersa*, 430 m, MTB 5947; 20.VI.1999, coll. J. K. (PRM 758573, specimen of *Weddellomyces xanthoparmeliae*). - Distr. Rakovník, BR Křivoklátsko, ca. 3.5 km SE of Rakovník near Dolní Chlum, at a path, on a silicite boulder, on *X. conspersa*, 300 m, MTB 5948; 3.I.1998, coll. J. K. and P. K. (PRM 892034). - Distr. Rakovník, BR Křivoklátsko, below the steep W exposed wall of the Čertova skála rock, on spilite rocks, on *X. conspersa*, 320 m, MTB 6048; 28.IX.1996, coll. J. H. (PRM 890819). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, Týřovické skály rocks, on shale, on *X. conspersa*, 320 m, MTB 6048; 10.IV.1998, coll. J. K. and P. K. (PRM 892639). - Distr. Rakovník, BR Křivoklátsko, NNR Velká Pleš, on the W slope of Velká Pleš hill, on rocks, on rhyolite, on *X. conspersa*, 490 m, MTB 6048; 3.X.1996, coll. J. H. (PRM 890818). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock at the road by the Berounka River, on rhyolite, on *X. conspersa*, 260 m, MTB 5949; 24.V.1997, coll. J. K. and P. K. (PRM 892636). - Distr. Rakovník, BR Křivoklátsko, Skryje, in the valley of the Ostrovecký potok stream, on boulders, on *X. conspersa*, 480 m, MTB 6048; 21.VI.1997, coll. J. K. and P. K. (PRM 891203). - Distr. Rakovník, BR Křivoklátsko, Roztoky, Na Babě nature reserve, on a steep slope above the Berounka River, on rocks, on rhyolite, on *X. conspersa*, 280 m, MTB 5949; 28.VI.1997, coll. P. K. (PRM 891204). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná stream, on scree, on *X. conspersa*, 310 m, MTB 5949; 3.X.1996, coll. J. H. and P. K. (PRM 891185, also present: *Karschia talcophila* on *Diploschistes scruposus*). - Ibid.: on rhyolite, on *X. somloënsis*, 9.XI.1997, coll. J. K. and P. K. (PRM 892547). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite outcrops, on *X. conspersa*, 360 m, MTB 5949; 29.VI.1998, coll. J. K. and P. K. (PRM 892480). - Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on *X. conspersa*, 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 892467, 892640). - Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *X. somloënsis*, 340 m, MTB 6050; 21.III.1997, coll. J. H. (PRM 890820). - Distr. Beroun, LPA Český Kras, near the village of Hostim, on diabasic rocks, on *X. somloënsis*, 260 m, MTB 6050; 25.IX.1998, coll. J. K. (PRM 892635). - The city of Praha, Pitkovice, Pitkovická stráň nature reserve, on shale, on *X. somloënsis*, 280 m, MTB 5953; 11.IX.1998, coll. J. K. (PRM 892455, 892638; 892560, specimen of *Weddellomyces xanthoparmeliae*, together with *Abrothallus caerulescens*).

Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov reservoir, on the S exposed slope near the "Chvalatická zátoka" creek, on quartzite boulders, on *X. conspersa*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 892657, PRM 758527, specimen of *Cornutispora* sp., together with *Abrothallus caerulescens, Sclerococcum* sp. and *Weddellomyces xanthoparmeliae*). - Distr. Znojmo, the Podyjí NP, the Vraní skála rock, on mica-schist outcrop, on *X. somloënsis*, 360 m, MTB 7161; 7.VI.1998, coll. J. K. (PRM 892463). - Distr. Znojmo, the Podyjí NP, Vranov n. Dyjí, ca. 4 km SE of the village, on the top of a ridge above the river, on shale rocks, on *Xanthoparmelia conspersa*, 490 m, MTB 7160; 4.IX.1998, coll. J. K. (PRM 758616, specimen of *Weddellomyces xanthoparmeliae*, together with *Abrothallus caerulescens, Lichenostigma cosmopolites* and *Lichenoconium usneae*).

Lichenostigma elongata NAV.-ROS. et HAFELLNER

Mycotaxon 57: 211-225 (1996)

Ref. CR: None.

Sel. lit.: Navarro-Rosinés and Hafellner (1996, figs 1-5).

Host lichens in CR: *Aspicilia caesiocinerea, Lobothallia radiosa.*

Other known hosts: *Aspicilia calcarea, A. cernohorskiana, A. cheresina, A. contorta* subsp. *contorta, A. contorta* subsp. *hoffmanniana, A. gibbosa, Aspicilia* sp., *Lobothallia alphoplaca, L. praeradiosa.*

Distribution: EUROPE: Austria (Navarro-Rosinés and Hafellner 1996: 220, Hofmann et al. 1995: 232), Belgium (Navarro-Rosinés and Hafellner 1996: 220), British Isles (Hitch 1997b: 34), France (Navarro-Rosinés and Hafellner 1996: 220, Diederich and Roux 1991: 21, as *Lichenostigma* sp. 1), Germany (Navarro-Rosinés and Hafellner 1996: 221, Wirth 1994: 15), Greece: Crete, Italy, Poland, Romania, Serbia (Navarro-Rosinés and Hafellner 1996: 221), Spain (Navarro-Rosinés and Hafellner 1996: 221, Etayo and Breuss 1996: 219, Llimona et al. 1998: 154), Ukraine (Kondratyuk et al. 1998b: 95, Kondratyuk 1999: 36); ASIA: Cyprus (Navarro-Rosinés and Hafellner 1996: 223, Litterski and Mayrhofer 1998: 63), Jordan, Mongolia, Syria (Navarro-Rosinés and Hafellner 1996: 223) and N. AFRICA: Spain: Canary Islands (Hafellner 1995c: 51), Tunisia (Navarro-Rosinés and Hafellner 1996: 223) and N. AMERICA: (Esslinger 1998), U.S.A.: Arizona, Colorado (Navarro-Rosinés and Hafellner 1996: 223).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, BR Křivoklátsko, below the Točník castle, on rocks, on *Aspicilia caesiocinerea*, 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 892447). - Ibid.: on *A. caesiocinerea* (PRM 758515, specimen of *Buellia badia*). - The city of Praha, Nová Ves, the Hemrovy skály diabasic rocks, on *Lobothallia radiosa*, 290 m, MTB 5952; 13.IV.1988, coll. J. H. (PRM 886315, specimen of *Lobothallia radiosa*). - Ibid.: on *Lobothallia radiosa*, 300 m, MTB 5952; 20.IV.1988, coll. J. H. (PRM 886313, specimen of *Lobothallia radiosa*, together with *Muellerella pygmaea* var. *athallina*). - Ibid.: on *Lobothallia radiosa*, 24.IX.1999 (PRM 758703).

Western Moravia, Tišnov, on a slope of Drásovský kopeček hill, on limestone, on *Lobothallia radiosa* (th.), 350 m, MTB 6664; 18.VI.1997, coll. J. K. (PRM 891181).

Lichenostigma maureri HAFELLNER

Herzogia 6: 301 (1982)

Ref. CR: Hafellner (1982: 304).

Sel. lit.: Hafellner (1982).

Host lichens in CR: *Evernia prunastri, Pseudevernia furfuracea, Ramalina pollinaria.*

Other known hosts: *Alectoria sarmentosa, Evernia* sp., *Letharia vulpina, Ramalina fraxinea, Usnea barbata* coll., *U. florida, U. fulvoreagens, U. glauca, U. rigida, U. scabrata, Usnea* sp.

Distribution: EUROPE: Austria (Hafellner 1982a: 302, Türk and Wittmann 1987: 101, Obermayer 1993: 143, Türk and Poelt 1993: 70, Hafellner and Türk 1995: 617), British Isles (Hawksworth 1986: 501, Thor 1985: 272), Finland (Vitikainen et al. 1997: 37), France: Corsica (Hafellner 1994a: 226), Germany (Wirth 1994: 15), Italy (Thor 1985: 272, Hafellner 1982a: 302), Norway (Hafellner 1993: 755, Santesson 1993: 131), Romania (Hafellner 1982a: 302), Slovenia (Mayrhofer et al. 1996: 125), Sweden (Thor 1985: 272, Eriksson 1992: 58, Santesson 1993: 131), Switzerland (Hafellner 1982a: 302), Ukraine (Hawksworth 1992: 99, Kondratyuk et al. 1998b: 96, Kondratyuk 1999: 36); ASIA: Georgia (Hafellner 1982a: 303, Navarro-Rosinés and Hafellner 1996: 212), Russia: Caucasia (Vězda 1984a: 7), Turkey (Hafellner 1982a: 304); N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 71, Hafellner 1995c: 51); N. AMERICA: (Esslinger and Egan 1995: 505) and S. AMERICA: Argentina, Peru (Thor 1985: 271-272).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Distr. Jindřichův Hradec, on bank of the Nový Vdovec lake, on the bark of *Quercus robur*, on *Evernia prunastri*, 350 m, MTB 6955; 12.VII.1996, coll. J. H. (PRM 891385, together with *Phaeosporobolus usneae*). - Ibid.: on *Ramalina pollinaria* (th.), 12.VII.1996, coll. J. H. (PRM 891384, together with *Phaeosporobolus usneae*).
Northern Moravia, Jeseníky Mts. ("Gesenke"), on *Pseudevernia furfuracea*, coll. F. Schenk, rev. J. Hafellner (GZU).

Additional specimen examined: SWITZERLAND: Berner Oberland, Adelboden, Enstligertal, on *Pseudevernia furfuracea*, 1350 m, 1.IV.1993, coll. J. H. (PRM 889670).

Lichenostigma rugosa THOR
Lichenologist 17: 269 (1985)

Ref. CR: None.

Host lichen in CR: *Diploschistes scruposus.*

Other known hosts: *Diploschistes actinostomus, D. actinostomus var. farinosus, D. albescens, D. canadensis, D. diacapsis, D. euganeus, D. gypsaceus, D. muscorum* and *D. steppicus.*

Ecology: *Lichenostigma rugosa* is a very common species on exposed rocks and on partly shaded stony slopes, especially in warm areas. It was found several times in mixed infections with *Karschia talcophila, Marchandiomyces corallinus* or *Sphinctrina leucopoda* respectively.

Distribution: According to Thor (1985: 272), this species is known in EUROPE: Austria, British Isles, France, Italy, Norway, Poland, Portugal, Spain, Sweden; ASIA: Iran, Saudi Arabia; N. AFRICA: Libya and in N. AMERICA: U.S.A.: Utah.

Other reports: EUROPE: Austria (Türk and Wittmann 1987: 101, Hofmann et al. 1993: 861, Türk and Poelt 1993: 71, Berger et al. 1998: 405, Hafellner 1999b: 518), British Isles (Hawksworth 1990: 399), Finland (Vitikainen 1991: 40, Vitikainen et al. 1997: 37), France: Corsica (Hafellner 1994a: 226), Germany (John 1990: 174, Wirth 1994: 15), Italy: Marettimo (Nimis et al. 1994: 256), Luxembourg (Diederich 1986: 7), Norway (Santesson 1993: 131), Spain (Santesson 1986: 4, Calatayud et al. 1995: 373, Navarro-Rosinés and Hafellner 1996: 212, Etayo and Breuss 1996: 219), Sweden (Alstrup 1991: 66, Eriksson 1992: 58, Santesson 1993: 131); N. AFRICA: Spain: Canary Islands (Santesson 1994a: 14, Hafellner 1995c: 51), Lybia (Navarro-Rosinés and Hafellner 1996: 212) and N. AMERICA: (Esslinger and Egan 1995: 505), Canada: British Columbia (Alstrup and Cole 1998: 225), Greenland (Alstrup and Hawksworth 1990: 48), U.S.A.: Arizona (Triebel et al. 1991: 279).

Specimens examined (all on *Diploschistes scruposus*): CZECH REPUBLIC: Western Bohemia, Distr. Rokycany, BR Křivoklátsko, near the village of Skryje, on a slope of Strážov hill, on a stony scree, on rhyolite, ca. 465 m, MTB 6048; 28.VI.1997, coll. J. K. and P. K. (PRM 891175).

Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on a spilite rock, 435 m, MTB 5947; 14.IX.1996, coll. J. H. (PRM 889698). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W exposed stony scree, on rhyolite, 330 m, MTB 5949; 31.VIII.1997, coll. J. K. (PRM 892165; PRM 892166, together with *Karschia talcophila*). - Distr. Rakovník, BR Křivoklátsko, on a steep slope of the Čertova skála rock, on spilite rocks, 290 m, MTB 6048; 14.VII.1997, coll. J. K. and P. K. (PRM 892185). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, on top of the ridge above the Úpořský potok stream valley, outcrop of the Výrovka rock, on rhyolite, 370 m, MTB 6048; 1.XI.1997, coll. J. K. and P. K. (PRM 891391). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a diabasic rock at the road by the Berounka River, 250 m, MTB 5949; 28.IX.1997, coll. J. K. and P. K. (PRM 892446). - Brdy Mts., Distr. Příbram, on a slope of Mt. Hřebenec, Hřebenec nature reserve, on a silicite boulder, 755 m, MTB 6448; 28.V.1998, coll. J. K. and Š. Bayerová (PRM 892105). - Distr. Rakovník, BR Křivoklátsko, Roztoky, Na Babě nature reserve, on rocks above the Berounka River, on rhyolite, 280 m, MTB 5949; 17.VI.1997, coll. P. K., det. J. K. (PRM 891212). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite outcrops, 360 m, MTB 5949; 27.VI.1998, coll. J. K. and P. K. (PRM 892458, together with *Karschia talcophila*; 892159, specimen of *Marchandiomyces corallinus*). - Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, 340 m, MTB 6050; 16.XI.1996, coll. J. H. (PRM 891169). - Ibid.: 21.III.1997, coll. J. H. (PRM 890807, 890794). - The city of Praha, Nová Ves, the Hemrovy skály diabasic rocks, 300 m, MTB 5952; 24.IX.1999, coll. J. H. (PRM 758702).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Kašperské Hory, on the N exposed slope of Mt. Valy, on boulders, on granite, ca. 850 m, MTB 6947; 17.V.1999, coll. J. K. (PRM 758603).

Western Moravia, Distr. Jihlava, 3 km W of the Jihlava town, in the Zaječí skok nature reserve above the Jihlava River, on gneiss, 510 m, MTB 6559; 15.X.1996, coll. J. H. (PRM 891177). - Distr. Žďár n. Sázavou, between Velká Bíteš and Velké Meziříčí, 5 km E of Tasov, on a granite boulder, ca. 450 m, MTB 6762; 14.V.1995, coll. J. H. (PRM 891393).

Marchandiomyces DIEDERICH et D. HAWKSW.
Mycotaxon 37: 311 (1990)

Although two species are known in this genus that belongs to the imperfect fungi, only one is known from the Czech Republic. An additional undescribed species probably occurs (Etayo and Diederich 1996a: 423).

Marchandiomyces corallinus (ROBERGE) DIEDERICH et D. HAWKSW.
Mycotaxon 37: 312 (1990)

Ref. CR: None.

Sel. lit.: Diederich (1990: 312-314, fig. 7), Etayo and Diederich (1996a: 422).

Host lichens in CR: *Acarospora fuscata, Aspicilia cinerea, Aspicilia* sp., *Candelariella vitellina, Diploschistes scruposus, Lecanora muralis, Lecidea fuscoatra, Lasallia pustulata, Neofuscelia loxodes, N. verruculifera, Parmelia saxatilis, P. sulcata, Platismatia glauca, Rhizocarpon disporum, R. geographicum, Umbilicaria hirsuta, Xanthoparmelia conspersa, X. somloënsis.*

Other known hosts: According to Etayo and Diederich (1996: 422) and Alstrup (1992: 185): *Chrysothrix chlorina, Flavoparmelia caperata, Hypogymnia physodes, Hypotrachyna revoluta, Lecanora conizaeoides, Lepraria caesioalba, Melanelia exasperata, M. fuliginosa, M. panniformis, Melanelia* sp., *Parmelia omphalodes, Parmelina quercina, Parmeliopsis ambigua, Parmotrema crinitum, Pertusaria multipuncta, P. pertusa, P. pustulata, Physcia adscendens, P. aipolia, P. semipinnata, P. tenella, Ramalina fastigiata, Usnea* sp..

According to Obermayer (1993: 143) also *Physcia stellaris.*

Note: *Marchandiomyces corallinus* s. str. was originally included in complex of species *Illosporium corallinum* ROBERGE. Based on the information about finding of dolipore septa in the genus (Lowen - in Etayo and Diederich 1996: 421), *Marchandiomyces corallinus* is probably a basidiomycetous imperfect fungus. *Marchandiomyces aurantiacus* (LASCH) DIEDERICH et ETAYO was confirmed as a further distinct species (Etayo and Diederich 1996a: 421) in the genus. It is distinguished by the orange colour of the sclerotia. Some reports in previous literature may belong to that latter species. Several above cited lichens may be hosts for both *Marchandiomyces* species.

Observation and ecology: *Marchandiomyces corallinus* is a parasitic fungus that occurs on very wide range of hosts. It can be found on lichens growing on the bark of trees as well as on saxicolous or terricolous lichens. In the Czech Republic all the collections were made only on saxicolous lichens in lowlands in warm areas, where the species appears to be very common. Seasonable growth of this fungus was observed. Sclerotia of *M. corallinus* were developed in great quantity in the autumn. The species is superficially similar to *Hobsonia christiansenii* (see p. 87). *Marchandiomyces corallinus* was observed to grow in mixed infections together with *Cercidospora solearispora, Endococcus rugulosus* s. l., *Lichenostigma rugosa* and *Sphinctrina leucopoda*. For further notes on this fungus see under these species and under *Arborillus llimonae, Hobsonia christiansenii* and *Weddellomyces xanthoparmeliae* in this paper.

Distribution: EUROPE: Austria (Türk and Poelt 1993: 72; Obermayer 1993: 143, as *Illosporium corallinum*; Etayo and Diederich 1996a: 422), Belgium (Sérusiaux et al. 1999: 47), British Isles (Fox 1997: 1), France (Rondon 1970: 740, Etayo and Diederich 1996a: 422, Coste 1997: 135, Santesson 1998: 8), France: Corsica (Hafellner 1994a: 226), Germany (John 1990: 174, Wirth 1994: 15), Luxembourg (Sérusiaux et al. 1999: 47), Norway (Santesson 1993: 134, Etayo and Diederich 1996a: 422), Slovak Republic (Alstrup 1992: 185), Spain (Calatayud et al. 1995: 374, Etayo and Diederich 1996a: 422), Sweden (Santesson 1993: 134, Thor 1993: 112), Switzerland (Etayo and Diederich 1996a: 422); N. AFRICA: Spain: Canary Islands (Etayo and Diederich 1996a: 422, Etayo 1996a: 102, Hafellner 1999a: 12) and N. AMERICA: (Esslinger and Egan 1995: 506).

Specimens examined: CZECH REPUBLIC: Central Bohemia, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W steep slope of Baraník hill, on rhyolite, on *Parmelia saxatilis*, 360 m, MTB 5949; 11.X.1998, coll. J. K. and P. K. (PRM 892633). - Ibid.: 16.XI.1998 (PRM 758308); 24.X.1999, on *Hypogymnia physodes* (PRM 758704), on *Lasallia pustulata* (PRM 758705), on *Platismatia glauca* (PRM 758706), on *Xanthoparmelia conspersa* (PRM 758707). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite, on *Diploschistes scruposus* and *Xanthoparmelia conspersa*, 370 m, MTB 5949; 29.VI.1998, coll. J. K. and P. K. (PRM 892159, together with *Lichenostigma rugosa*). - Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on *Diploschistes scruposus*, 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 758328, 758502 together with *Lichenostigma rugosa*). - Ibid.: on *Aspicilia cinerea* (PRM 758495, 758496, together with *Cercidospora solearispora*), on *Lecanora muralis* (PRM 758499), on *Neofuscelia verruculifera* (PRM 758494), on *Neofuscelia loxodes* (PRM 758498), on *Rhizocarpon geographicum* (PRM 758500), on *Rhizocarpon disporum* (PRM 758516, specimen of *Endococcus rugulosus*), on *Umbilicaria hirsuta* (PRM 758501).

Western Moravia, Distr. Třebíč, near the confluence of the rivers Chvojnice and Oslava, the Ketkovický hrad castle, on granulite rocks, on *Parmelia saxatilis*, 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 758485). - Ibid.: on *Candelariella vitellina* and *Acarospora fuscata* (PRM 758504), on *Neofuscelia loxodes* (PRM 892645), on *Platismatia glauca* (PRM 758503), on *Xanthoparmelia conspersa* (PRM 892646, 758505).

Southern Moravia, Distr. Znojmo, the Podyjí NP, in the Havranické vřesoviště heath, on a granite boulder, on *Lecidea fuscoatra* (th.), 320 m, MTB 7161; 4.VI.1998, coll. J. K. (PRM 892152).

Merismatium ZOPF

Nova Acta Acad. Caes. Leopold.-Carol. Germ. Nat. Cur. 70: 259 (1898)

The genus belongs to the family *Verrucariaceae*. It comprises both saprobic and endokapylic lichenicolous fungi. The delimitation of the genus and its distinguishing characters from the closely related *Phaeospora* HEPP ex STEIN are not sufficiently ascertained. Members of this genus are characterized by usually halonate and at least submuriform spores. Species of *Phaeospora* are characterized by usually non-halonate and mostly only transversally septate spores, however, the longitudinae septa may be present. Both genera need a more thorough revision. The lecideicolous species of the genus *Merismatium* were treated by Triebel (1989).

For notes on similarity and relation of *Merismatium* and *Phaeospora* see also under latter genus.

Merismatium nigritellum (NYL.) VOUAUX

Bull. Soc. mycol. France 29: 77 (1913)

Syn.: *Merismatium lopadii* (ANZI) ZOPF, Nova Acta Acad. Caes. Leopold.-Carol. Germ. Nat. Cur. 70: 259 (1898)

Ref. CR: Vězda (1970: 222), Diederich (1986: 10), Triebel (1989: 191).

Sel. lit.: Triebel (1989: 189-191, fig. 17a).

Host lichens in CR: *Leptogium lichenoides* var. *pulvinatum, Micarea* sp.

Other known hosts: *Catapyrenium lachneum, Catillaria nigroclavata, Lecanora conizaeoides, Lecidella elaeochroma, Lepraria neglecta, Leptogium* sp., *Lopadium pezizoideum, Mycobilimbia berengeriana, Pannaria pezizoides,*

Peltigera rufescens, Phytoconis viridis [= *Omphalina hudsoniana*], *Protoblastenia calva, P. rupestris, Pyrenopsis macrocarpa.*

Distribution: EUROPE: Austria (Triebel 1989: 189, Türk and Poelt 1993: 73, Hafellner and Türk 1995: 617, Hofmann et al. 1998: 161), Great Britain (Hawksworth et al. 1980: 61, Hawskworth 1983: 8, Triebel 1989: 189), Italy (Triebel 1989: 189, Nimis 1993: 85), Luxembourg (Diederich 1986: 9, 1989: 157, John 1990: 176), Norway (Triebel 1989: 191, Santesson 1993: 137), Norway: Spitsbergen (Alstrup and Olech 1993: 38), Portugal (Boom and Giralt 1999: 189), Spain (Triebel 1989: 191), Sweden (Triebel 1989: 191, Eriksson 1992: 65, Santesson 1993: 137), Switzerland (Triebel 1989: 191); ASIA: Russia: Taymyr Peninsula (Zhurbenko and Santesson 1996: 155), Yenisey area (Triebel 1989: 191) and N. AMERICA: Greenland (Alstrup and Hawksworth 1990: 48).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. the city of Praha, in the Dalejské údolí valley, near the old quarry Aretusinová rokle, on *Leptogium lichenoides* var. *pulvinatum*, 310 m, MTB 5952; 23.I.1993, coll. J. H. (PRM 889679).

Eastern Bohemia, Krkonoše Mts. ("Sudeti occid."), Kotelní jámy, on *Micarea* sp., ca. 1350 m, MTB 5259; VII.1960, coll. A. Vězda (hb. Vězda, as *M. lopadii*).

Microcalicium VAIN.

Acta Soc. Fauna Fl. Fenn. 57(1): 77 (1927)

The genus *Microcalicium* was monographed by Tibell (1978b) and it is frequently treated in revisions of the Caliciales in various floras all over the world.

Microcalicium arenarium (HAMPE ex A. MASSAL.) TIBELL

Bot. Notiser 131: 237 (1978)

Syn.: *Chaenotheca arenaria* (HAMPE ex A. MASSAL.) ZWACKH, Flora 45: 536 (1862)
Calicium arenarium (HAMPE ex A. MASSAL.) KÖRB., Parerga Lich.: 293 (1863)
Coniocybopsis arenaria (HAMPE ex A. MASSAL.) VAIN., Acta Soc. Faun. Fl. Fenn. 57(1): 75 (1927)
Calicium citrinum (LEIGHT.) NYL., Monogr. Calic.: 33 (1857)

Ref. CR: Tibell (1978b: 237), Berger and Türk (1993b: 676), Liška (1995: 13), Gruna (1996: 86), Vězda (1998: 99), Halda (1999: 18); as *Calicium arenarium*: Hruby (1930: 77), Kuťák (1927: 39), Servít (1959: 136), Suza (1923: 19, 1924: 29, 1925: 55, 62, 1933c: 31, 1940: 78, 1944b: 79, 1947: 187); as *Calicium citrinum*: Anders (1904: 84), Rabenhorst (1870: 19); as *Chaenotheca arenaria*: Anders (1922: 273), Hruby (1930: 45, 53, 77), Kuťák 1923b: 60; Migula (1931: 484), Schade (1917: 39), Suza (1921: 5, 1922: 14); as *Coniocybopsis arenaria*: Vězda (1957a: 74).

Sel. lit.: Tibell (1975: 51-52, as *Coniocybopsis arenaria*, 1978: 237, figs 3-5; 1984: 644, 648, 670; 1987: 173-174), Purvis et al. (1992: 385).

Host lichen in CR: *Psilolechia lucida.*

Other known hosts: *Psilolechia clavulifera,* on *Stichococcus* or other green algae of *Cystococcaceae.*

Ecology: *Microcalicium arenarium* is a parasitic species on *Psilolechia lucida* and much less rarely on *P. clavulifera.* It occurs in shaded sites with very high humidity only, predominantly under overhangs of siliceous rocks, also on exposed roots of trees from lowlands to mountains. In the Southern Hemisphere it grows mainly on wood.

Distribution: *Microcalicium arenarium* is widely distributed in both hemispheres, although it is a rather rare species. It is distributed in cool temperate areas, in more southern areas of Europe it is mostly montane.

EUROPE: Austria (Türk and Wittmann 1987: 104, Mayrhofer et al. 1989: 231, Türk and Poelt 1993: 75, Berger and Türk 1993b: 676, Tibell 1996: 8, Boom et al. 1996: 640), Belgium (Diederich 1986: 10, 1989: 164), British Isles (Tibell 1978b: 237, Hawksworth et al. 1980: 63, Purvis et al. 1992: 385, Hitch 1996b: 43), Estonia (Lõhmus 1998: 44, Jüriado et al. 1999: 65), Finland (Tibell 1978b: 237, Vitikainen et al. 1997: 41), Germany (Tibell 1978b: 237, 1987: 173; Wirth 1994: 17, Heibel et al. 1998: 176), Italy (Tibell 1978b: 237, Nimis 1993: 438, Puntillo 1996: 121), Luxembourg (Diederich 1986: 10, 1989: 164; John 1990: 178), Norway (Santesson 1993: 141), Poland (Fałtynowicz 1993: 23), Romania (Moruzi et al. 1967: 50, as *C. arenarium*), Slovak Republic (Dětinský et al. 1998: 8), Sweden (Tibell 1978b: 237, Karström and Thor 1991: 90, Santesson 1993: 141), Ukraine (Oxner 1956: 312, Tibell 1990: 4); ASIA: Russia (Tibell 1978b: 237); N. AMERICA: (Esslinger and Egan 1995: 508), Canada: British Columbia (Tibell 1978b: 237), U.S.A.: Alaska, Minnesota, Oregon (Tibell 1978b: 237); S. AMERICA: Chile (Tibell 1996: 7) and AUSTRALASIA: Tasmania (Tibell 1987: 173), New Zealand (Tibell 1987: 174, 1997: 295).

Specimens (not seen): CZECH REPUBLIC: Eastern Bohemia, Orlické hory Mts., Distr. Rychnov nad Kněžnou, in the village of Podlesí near the Divoká Orlice River, in a small quarry by a road in a forest, on *Psilolechia lucida*, 550 m, MTB 5765; 21.VII.1995, coll. J. Halda (hb. Halda). - Orlické hory Mts., Distr. Rychnov nad Kněžnou, 4 km SW of the Deštné v Orlických horách village, in the Antonínino údolí valley, on *Psilolechia lucida*, 530 m, MTB 5664; 3. XII. 1997, coll. J. Halda and J. Kučera, det. J. Halda (hb. Halda, hb. Palice).

Specimens examined (all on *Psilolechia lucida)*: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Zhůří, in the valley of the Pěnivý potok stream, 800 m, MTB 6947; 22.VI.1995, coll. J. H., Z. Palice, J. Liška, R. Dětinský (PRM 892548).

Central Bohemia, Distr. Rakovník, BR Křivoklátsko, NNR Týřov, below the Týřov castle, in the valley on a rock by a path, 260 m, MTB 6048; 5.VII.1996, coll. J. H. (PRM 758633). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, by a road, on a silicite rock, 310 m, MTB 5949; 3.X.1996, coll. J. H. and P. K. (PRM 892161).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, near the railway station Pěkná, near the road between Nová Pec and Černý Kříž, on sandy soil below a coniferous stump, ca. 730 m, MTB 7149; 1995, coll. Z. Palice (hb. Palice).

Northern Bohemia, České středohoří Mts., Distr. Litoměřice, near the village of Loučky, in the Bobří údolí valley, 400 m, MTB 5352; 26.IX.1995, coll. J. Liška, J. H. and P. Scholz (PRM 892106, 892555). - Distr. Děčín, LPA České Švýcarsko, near the village of Zadní Dubice, in the valley of the Brtnický potok stream, on a vertical wall of a sandstone rock, ca. 280 m, MTB 5052; 4.V.1996, coll. Z. Palice (hb. Palice).

Eastern Bohemia, Orlické hory Mts., Distr. Rychnov nad Kněžnou, near the village of Podlesí near the Divoká Orlice River, on a rock by a road, over bryophytes, 620 m, MTB 5765; 19.IV.1996, coll. J. H. and Š. Bayerová, det. J. H. (hb. Bayerová).

Southern Moravia, Distr. Znojmo, the Podyjí NP, Vranov nad Dyjí, Ledové sluje nature reserve, in the lower part of a slope covered by boulders, ca. 400 m, MTB 7160; 16.X.1995, coll. and det. B. Gruna (hb. Gruna).

Microcalicium disseminatum (ACH.) VAIN.
Acta Soc. Fauna Fl. Fenn. 57(1) : 77 (1927)

Syn.: *Calicium disseminatum* (ACH.) FR., Sched. Critic.: 7 (1824)
Microcalicium subpedicellatum (SCHAERER) TIBELL, Bot. Notiser 131: 240 (1978)
Strongylopsis commixta VAIN., Acta Soc. Fauna Fl. Fenn.: 66 (1927)
Strongylopsis stichococci VAIN., Acta Soc. Fauna Fl. Fenn.: 68 (1927)

Ref. CR: As *Strongylopsis commixta*: Nádvorník (1942: 33); Vězda (1955: 38); as *Calicium disseminatum*: Hilitzer (1929a: 106, 1929b: 102), Laurer (1855: 229); as *Strongylopsis stichococci*: Nádvorník (1942: 33).

Sel. lit.: Hawksworth 1981a: 42-44, figs 20a-f), Purvis et al. (1992: 385), Tibell (1978: 240-246, figs 8-11, as *Microcalicium subpedicellatum*; 1997: 306).

Host lichen in CR: *Chaenotheca sphaerocephala* and unidentified crusts of calicioid lichens.

Known hosts: *Calicium glaucellum, C. viride, Chaenotheca brunneola, C. chrysocephala, C. subroscida, C. trichialis* and free-living green algae.

Ecology: A parasitic or parasymbiotic species on the above listed species. It is mainly and frequently found in imperfect form. It may rarely occur as a saprophyte on pine wood of old trees. It grows in humid conditions mainly in montane to high montane regions.

Distribution: The species is widely distributed. It has holoarctic distribution in the Northern Hemisphere and it is also known in the Southern Hemisphere.

EUROPE: Austria (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *Microcalicium subpedicellatum*; Türk and Wittmann 1987: 104, Mayrhofer et al. 1989: 232, Obermayer 1993: 129), British Isles (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum*; Purvis et al. 1992: 385), Estonia (Lõhmus 1998: 44, Jüriado et al. 1999: 65), Finland (Nylander 1860: 146, as *Calicium disseminatum*; Hawksworth and Atienza 1994: 49, as *M. disseminatum* var. *aeruginosa*), France (Ozenda and Clauzade 1970: 207, as *C. disseminatum*; Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum*), Germany (Wirth 1981: 12, 1994: 16, 1995: 590; Hauck 1995a: 209, 216), Italy (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum*; Nimis 1993: 439), Norway (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum*), Romania (Moruzi et al. 1967: 51, as *C. disseminatum*, 1967: 59, as *Strongylopsis commixta*), Russia: Karelia-Lapland (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum*), Slovenia (Mayrhofer et al. 1996: 125), Sweden (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum;* Thor 1992: 25, Tibell 1997: 295), Switzerland (Tibell 1978b: 245, Hawksworth 1981a: 44, both as *M. subpedicellatum*; Boom et al. 1993: 22), Ukraine (Titov 1998b: 90, Kondratyuk 1999: 36); ASIA: Russia: Baikal (Urbanavichene 1998: 114) and N. AMERICA: (Esslinger and Egan 1995: 508), Canada: (Hawksworth 1981a: 44, as *M. subpedicellatum*), British Columbia, U.S.A.: Michigan (Tibell 1975: 56; Tibell 1978: 246, as *M. subpedicellatum*). The species was also eited by Nimis to be known in the Southern Hemisphere (Nimis 1993: 439).

Specimen (not seen): CZECH REPUBLIC: Western Moravia, Distr. Třebíč, Náměšť nad Oslavou, Obora, on the bark of *Quercus*, 380 m, MTB 6762; 1921, coll. J. Suza, det. J. Nádvorník (?BRA, as *Strongylopsis stichococci*).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Příbram, Dobříš, Hřebeny hills, Hradec hill, MTB 6250; 30.VI.1928, coll. A. Hilitzer (PRM 696384).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Mt. Stožec, near the Stožecká kaple chapel, on *Abies alba*, ca. 930 m, MTB 7148; 12.XI. 1994, coll. J. Halda and Z. Palice (hb. Palice). - Šumava Mts., Distr. Prachatice, Mt. Stožec, Medvědice nature reserve, on *Picea abies*, 920-930m, MTB 7148; 18.VI. 1995, coll. Z. Palice (hb. Palice). - Šumava Mts., Distr. Prachatice, the Blanice River valley, near the Hus castle-ruins, on *Picea abies*, 700 m, MTB 6949; 13.V.1996, coll. Z. Palice (hb. Palice). - Šumava Mts., Distr. Prachatice, Volary, Mt. Plechý, in the climatic spruce forest NW of "Rakouská louka" meadow and near of "Trojmezí", ca. 48°46'30-40"N, 13°50'30-45"E, at base of old *Picea*, parasiting on *Chaenotheca sphaerocephala*, 1280-1320 m, MTB 7249; 29.V. 1998, coll. Z. Palice (hb. Palice 1635). - Šumava Mts., Distr. Prachatice, in the peat bog Malá Niva near Lenora ("Luh u Lenory"), on *Picea*, MTB 7048; 14.IX.1930, coll. A. Hilitzer (PRM 696379). - Šumava Mts., Distr. Prachatice, Volary, Mt. Plechý, Jezerní stěna rock slope, "Evina stráň" slope, on *Abies*, MTB 7249; 9.IX.1926, coll. A. Hilitzer (PRM 696386).

Muellerella HEPP ex. MÜLL. ARG.
Mém. Soc. Phys. Genève 16: 419 (1862)

The genus comprises lichenicolous and bryophilous parasymbiotic fungi belonging to the family *Verrucariaceae*. Hawksworth (1979b) has considered the fungi formerly referred to *Tichothecium* FLOT., characterized by polyspored asci discharging by a bursting of the apex and evanescent interascal filaments as belonging to the genus *Muellerella*. Triebel (1989) studied in detail lecideicolous members of this genus. Comparison with the similar genus *Plurisperma* SIVAN. was made by Matzer (1993b). *Muellerella pygmaea*-complex and *Muellerella lichenicola* are unsufficiently investigated and more natural delimitation of individual taxons should be carried out. For further notes see under *Endococcus* and under the *Muellerella* species in this paper.

Muellerella hospitans STIZENB.
Nova Acta Acad. Leopold.-Carol. Germ. Nat. Cur. 30: 51 (1863)

Syn.: *Muellerella polyspora* var. *hospitans* (STIZENB.) KEISSL., Ark. Bot. 18/16: 4 (1923)

Ref. CR: Vězda (1959b: 8, 1963: 154).

Exs. CR: Vězda: Lich. Bohemosl. exs. 300, as *M. polyspora* var. *hospitans*.

Sel. lit.: Hawksworth (1975b: 192-194, fig. 7), Vězda (1963: 154).

Host lichen in CR: *Bacidia rubella*.

Other known hosts: *Bacidia fraxinea*. Also reported on an unidentified crustose, terricolous lichen (Zhurbenko 1996: 226).

Distribution: EUROPE: Austria (Hafellner 1999b: 519), British Isles (Hawksworth 1975b: 193, Hawksworth et al. 1980: 64, Hawksworth 1983: 9), Denmark (Alstrup et al. 1988: 26), Estonia (Jüriado et al. 1999: 65), France (Bricaud and Roux 1990: 127, Bricaud et al. 1993: 104, Navarro-Rosinés and Roux 1997: 453), Germany (Keissler 1930: 317, as *M. polyspora* var. *hospi-*

tans; Wirth 1994: 16), Italy (Keissler 1930: 317, as *M. polyspora* var. *hospitans*), Italy: Sardinia (Nimis and Poelt 1987: 142), Portugal (Boom and Giralt 1999: 189), Slovak Republic (Vězda 1963: 154), Spain (Etayo and Diederich 1998: 109), Sweden (Santesson 1986: 13, 1993: 143), Switzerland (Keissler 1930: 316); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 226) and N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 74, Hafellner 1995c: 55).

Specimens examined (all on apothecia of *Bacidia rubella*): CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, České Žleby, below the top of Mt. Spáleniště, in the remainder of a primeval forest, on the bark of *Acer platanoides*, 940 m, MTB 7148; 21.V.1995, coll. Z. Palice, det. J. K. (PRM 890785). - Šumava Mts., Distr. Prachatice, Volary, on a slope of Mt. Stožecká skála, on the bark of *Acer platanoides*, 930 m, MTB 7148; 11.I.1997, coll. Z. Palice, det. J. K. (PRM 890786, 890821).

Southern Moravia, Distr. Znojmo, near Vranov nad Dyjí, by a forest path, ca. 300 m, MTB 7160; VII.1960, coll. A. Vězda (hb. Vězda). - Distr. Blansko, in the valley of the Punkva River, 400 m, MTB 6666; 20.VIII.1963, coll. A. Vězda (hb. Vězda). - The city of Brno, in the valley "Říčky" near Ochoz, ca. 350 m, MTB 6766; III.1959, coll. A. Vězda (Vězda: Lich. Bohemoslov. exs. 300, PRM 516470).

Muellerella lichenicola (SOMMERF.) D. HAWKSW.

Bot. Notiser 132: 289 (1979)

Ref. CR: Vězda (1963: 154, as *Tichothecium pygmaeum* KÖRB.).

Sel. lit.: Triebel (1989: 155-159, tab. 4, figs 19, 20a).

Host lichens in CR: *Caloplaca flavovirescens, Lecania cyrtella, Toninia sedifolia.*

Other known hosts: *Aspicilia calcarea, Bellemerea alpina, B. subsorediosa, Caloplaca arnoldii, C. cerina, C. cerina* var. *cyanolepra, C. citrina, C. flavorubescens, C. holocarpa, C. lactea, C. lithophila, C. paulii, C.* cf. *saxicola, C. subochracea, C. variabilis, C. velana, Caloplaca* sp., *Catillaria detractula, Fulgensia bracteata, F. fulgida, Lecanora campestris, L. dispersa, L. dispersoareolata, L. flotowiana, L. intricata, L. muralis, L. polytropa, Lecidella patavina, L. stigmatea, Lecidella* sp., *Lobothalia radiosa, Mycobilimbia sabuletorum, Ochrolechia* sp., *Pertusaria glomerata, Physcia stellaris, Physconia distorta, Protoblastenia incrustans, Rinodina bischoffii, R. castanomelodes, R. immersa, R. tubulata, Solenopsora candicans, Tephromela atra, Toninia squalida, Verrucaria* cf. *viridula, Xanthoria borealis, X. elegans* and according to Triebel (1989: 156) probably also *Tylothallia biformigera.*

Discussion: According to Triebel (1989), the main characters of *Muellerella lichenicola* are immersed ascomata of (70-)100-125(-150) µm, asci of ca. 100 spored and ascospores of (4.5-)5-6(-7) x (2-)2.5-3(-3.5) µm. The type host of *M. lichenicola* is *Caloplaca flavovirescens.* The fungus predominantly occurs in apothecia of its hosts. These features should well characterize this fungus and distinguish it from the *Muellerella pygmaea* complex which is characterized by generally larger ascomata of (100-)150-250(-400) µm, asci of 16-64 spored, ascospores of 6-10(-13) x 3-5.5(-6) µm and by ascomata mostly arising from thalli of their hosts. However, considering the literature reports, *Muellerella lichenicola* is reported in a number of cases on the same hosts as *Muellerella pygmaea* var. *athallina*, i. e. on *Aspicilia calcarea, Caloplaca cerina, C. paulii, Lecidella patavina, L. stigmatea, Lobothalia radiosa, Protoblastenia incrustans, P. rupestris, Porpidia speirea* and on *Rinodina bischoffii. Muellerella pygmaea* var. *athallina* is predominantly characterized by having the smallest ascomata of the *Muellerella pygmaea*-complex of (100-) 125-200(-250) µm, asci (ca.20-)32-64 spored and ascospores of (5.5-)6-8(-8.5) x (2.5-)3-4.5(-5) µm (Triebel 1989). Its type host is *Protoblastenia incrustans.* The ascospores of both taxa are mutually similar. They are thin-walled and pale brown.

We observed intermediate characters of both these taxa in collections on *Aspicilia* cf. *calcarea, Caloplaca variabilis* and *Protoblastenia rupestris.* Number of spores and their size vary in ascomata in one collection. With some hesitation these findings are included here as *Muellerella pygmaea* var. *athallina* in accordance with Triebel (l.c.). Number of spores in asci and their size also vary in *M. lichenicola* on *Rinodina bischoffii* in our collection and we found both, the asci with typical number of spores and with distinctly lower one as well.

Hafellner and Türk (1995: 618) collected *Muellerella lichenicola* on the type host *Caloplaca flavovirescens* and they identified it on *Lecidella patavina, L. stigmatea* and on a member of a *Lecanora* as well, although Triebel (l.c.) had listed before *Muellerella pygmaea* var. *athallina* on both mentioned *Lecidella* species. In another case Zhurbenko and Santesson (1996: 155) mentioned both *M. lichenicola* and *M. pygmaea* (without identification of variety) on *Xanthoria elegans*, Boom et al. (1996: 641) listed the taxon *M. pygmaea* var. *pygmaea* on *X. elegans* in agreement with Triebel (l.c).

It is appearent that the complex of infraspecific taxa of *Muellerella lichenicola* and *M. pygmaea* needs a new comprehensive study.

Distribution: EUROPE: Austria (Türk and Wittmann 1987: 104, Wittmann and Türk 1987: 392, Wittmann et al. 1989: 465, Mayrhofer et al. 1989: 232, Triebel 1989: 159, Hafellner et al. 1992: 114, Hofmann et al. 1993: 861, Matzer 1993b: 206, Obermayer 1993: 143, Türk and Poelt 1993: 76, Hafellner and Türk 1995: 618, Hofmann et al. 1998: 161, Grube 1999: 247), British Isles (Triebel 1989: 158), Denmark (Hawksworth 1979a: 209, Alstrup et al. 1988: 26), Denmark: Bornholm (Alstrup 1994: 53), Denmark: Faeroe Islands (Alstrup et al. 1994: 97), France (Triebel 1989: 158, Navarro-Rosinés and Roux 1997: 453), Germany (Triebel 1989: 158, Kümmerling 1991: 251, Wirth 1994: 16), Ireland (Triebel 1989: 158), Greece: Crete (Triebel 1989: 159), Italy (Triebel 1989: 158), Italy: Sardinia (Nimis and Poelt 1987: 142), Italy: Marettimo (Nimis et al. 1994: 256), Luxembourg (Diederich 1986: 10), Norway (Triebel 1989: 158), Poland (Fałtynowicz 1993: 23), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 155), Slovak Republic (Alstrup 1996: 14), Slovenia (Triebel 1989: 159), Spain (Calatayud et al. 1995: 374, Etayo and Breuss 1996: 226, Llimona et al. 1998: 154), Spain: Mallorca (Etayo 1996b: 116), Sweden (Santesson 1986: 13, Triebel 1989: 158, Alstrup 1991: 66, Thor 1992: 25, Santesson 1993: 143), Switzerland (Triebel 1989: 158), Ukraine (Kondratyuk and Khodosovtsev 1997: 590, Kondratyuk 1999: 36); ASIA: Russia: Putorana Plateau (Zhurbenko 1996: 226, Zhurbenko and Hafellner 1999: 75), Taymyr Peninsula (Zhurbenko 1996: 226, Zhurbenko and Santesson 1996: 155); N. AFRICA: Spain: Canary Islands (Hafellner 1995c: 55); N. AMERICA: (Esslinger and Egan 1995: 508), Greenland (Alstrup and Hawksworth 1990: 48), U.S.A.: Colorado (Triebel et al. 1991: 280) and AUSTRALASIA: New Zealand (Triebel 1989: 159).

Muellerella lichenicola was reported from the Czech Republic previously, but not under the correct name.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, NNR Týřov, Týřovické skály rocks, on shale, on *Caloplaca flavovirescens* (ap. and th.), 370 m, MTB 6048; 12.IV.1998, coll. J. K. and P. K. (PRM 892510). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W exposed slope, in a mixed forest, on shale, on *Caloplaca flavovirescens* (ap. and th.), 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K. (PRM 758486). - The city of Praha, in the Prokopské údolí valley, on the S slope of calcareous rocks above the old swimming pool Holyňské koupaliště, on *Rinodina bischoffii*, 260 m, MTB 5952; 6.XI.1994, coll. J. H. (PRM 758544).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, at a margin of the forest ca. 1.5 km E of Mt. Hůrka, on a thick aspen branch, on *Lecania cyrtella*, 800 m, MTB 7149; 10.III.1996, coll. Z. Palice, det. J. K. (hb. Palice, specimen of *Catillaria nigroclavata*).

Northern Moravia, Jeseníky Mts., Distr. Jeseník, Mt. Špičák, near Supíkovice, on *Caloplaca flavovirescens*, ca. 550 m, MTB 5769; VII.1955, coll. Vězda (hb. Vězda, as *Tichothecium pygmaeum*).

Southern Moravia, Palavské kopce hills, Distr. Břeclav, near Mikulov, on *Toninia sedifolia* (as *T. caeruleonigricans*), 380 m, MTB 7165; IV.1962, coll. Vězda (hb. Vězda, as *M. polyspora*).

Muellerella pygmaea (KÖRB.) D. HAWKSW.
Bot. Notiser 132: 289 (1979)

Bas.: *Tichothecium pygmaeum* KÖRB., Schles. Ges. Vaterl. Kult., Denkschr. Feier 50jähr. Best.: 236 (1853)
Syn.: *Microthelia pygmaea* (KÖRB.) KÖRB., Syst. Lich. Germ.: 374 (1855)

Ref. CR: As *Tichothecium pygmaeum*: Servít (1910: 37), Maloch (1913: 32), Anders (1924b: 74), Vězda (1963: 154); as *Microthelia pygmaea*: Veselsky (1858: 260).

Sel. lit.: Triebel (1989: 159-161).

Note: *Muellerella pygmaea* is very often reported in broad sense, without any detailed specification of varieties. Numerous hosts, which are cited in such records, significantly enlarge a total number of hosts of this complex. These hosts may be found in some of the following reports:

EUROPE: Austria (Türk and Wittmann 1987: 104, Wittmann and Türk 1987: 392, Wittmann et al. 1989: 465, Hafellner 1991: 100, Berger and Türk 1991: 436, Obermayer 1993: 143, Hofmann et al. 1998: 161), British Isles (Hawksworth et al. 1980: 64, 1983: 4), Croatia (Keissler 1933: 393), Denmark: Bornholm (Alstrup 1994: 53), Denmark: Faeroe Islands (Alstrup and Christensen 1999: 25), Germany (John 1990: 179, Kümmerling 1991: 251, Wirth 1994: 16), Italy (Puntillo 1996: 123), Italy: Sardinia (Nimis and Poelt 1987: 142), Norway (Hafellner 1993: 755, Holien and Tønsberg 1994: 72), Norway: Spitsbergen (Hafellner 1982b: 39, Aptroot and Alstrup 1991: 75), Poland (Fałtynowicz 1993: 23), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 156), Slovak Republic (Keissler 1933: 393, Alstrup 1996: 14), Spain (Hafellner and Sancho 1990: 372, Calatayud and Barreno 1994: 31, Calatayud et al. 1995: 374, Etayo and Breuss 1996: 226), Spain: Mallorca (Etayo 1996b: 116), Sweden (Santesson 1986: 4, Alstrup 1991: 66, Santesson 1993: 143), Switzerland (Boom et al. 1993: 22), Ukraine (Kondratyuk and Kolomiets 1997: 43, Kondratyuk 1999: 36); ASIA: Russia: New Siberian Islands, Severnaya Zemlya (Zhurbenko and Santesson 1996: 156), Putorana Plateau (Zhurbenko 1996: 226), Taymyr Peninsula (Zhurbenko and Santesson 1996: 156, Zhurbenko 1996: 226); N. AFRICA: Morocco (Maire and Werner 1938: 28, Werner 1959: 112), Portugal: Madeira (Kalb and Hafellner 1992: 74, Hafellner 1995c: 56) and N. AMERICA: (Esslinger and Egan 1995: 509), Canada: British Columbia (Thomson and Ahti 1994: 156).

Specimen (not seen): CZECH REPUBLIC: Southern Moravia, Veverská Bítýška, near the town, on conglomerate rocks "Kůňky", on *Acarospora* sp., ca. 300 m, MTB 6764; X.1951, coll. A. Vězda (hb. Vězda - not found).

Muellerella pygmaea var. *pygmaea*

Ref. CR: As *Tichothecium pygmaeum*: Novák (1888: 55, 1893: 56).

Sel. lit.: Triebel (1989: 157, 161-166, tab. 4, figs 20 b, c; 21) and Matzer (1993b: 207, figs 4-5).

Host lichen in CR: *Lecidea fuscoatra, L. tessellata.*

Other known hosts: *Acarospora fuscata, Acarospora* sp., ?*Aspicilia calcarea* agg., *Bellemerea alpina, B. cinereorufescens, B. subcandida, Caloplaca biatorina, C. chalybaea, C. havaasii, C. proteus, C. scrobiculata, C. trachyphylla, Caloplaca* sp., *Lecidea atrobrunnea, L. atromorio, L. confluens, L. lapicida, L. leprosolimbata, L. leucothallina, L. lithophila, L. paupercula, L. plana, L.* cf. *rapax, L. silacea, L. speirodes, L. swartzioidea, L. verruca, X. elegans.*

Distribution: According to Triebel (1989: 159, 162-166), *Muellerella pygmaea* var. *pygmaea* is a very widely distributed species in EUROPE: Austria, British Isles, Finland, France, Greece, Iceland, Italy, Poland, Macedonia, Montenegro, Norway, Norway: Spitsbergen, Romania, Russia, Spain, Sweden, Switzerland, and it is also known from N. AMERICA: Greenland; N. AFRICA: Spain: Canary Islands; AUSTRALASIA: New Zealand and from ANTARCTICA: South Georgia.

Other reports: EUROPE: Austria (Mayrhofer et al. 1989: 232, Wittmann et al. 1989: 465, Hofmann et al. 1993: 861, Türk and Poelt 1993: 76, Matzer 1993b: 206, Hafellner and Türk 1995: 619, Boom et al. 1996: 641), Belgium (Sérusiaux et al. 1999: 52), Italy: Marettimo (Nimis et al. 1994: 256), Luxembourg (Sérusiaux et al. 1999: 52); ASIA: Russia: Putorana Plateau (Zhurbenko and Hafellner 1999: 75) and N. AMERICA: U.S.A.: Alaska, Colorado (Triebel et al. 1991: 280).

Specimens examined (if not mentioned otherwise all on *Lecidea fuscoatra*): CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Lašovice, on shale by a railway, 240 m, MTB 5948; 8.VI.1997, coll. P. K., det. J. K. (PRM 890803, 891195). - Distr. Rakovník, BR Křivoklátsko, in the valley of the Úpořský potok stream, on a slope covered by boulders, 300 m, MTB 6048; 3.VIII.1997, coll. J. K. and P. K. (PRM 891190). - Distr. Rakovník, BR Křivoklátsko, Roztoky, Na Babě nature reserve, on rhyolite, 280 m, MTB 5949; 17.VI.1997, coll. P. K., det. J. K. (PRM 891170). - Distr. Beroun, Sedlec, on diabasic rocks, 310 m, MTB 6050; 15.IV.1993, coll. J. H. (PRM 891214).

Southern Bohemia, Distr. Jindřichův Hradec, Třeboň, near Stříbřec, on a rock, MTB 6955; 1888, coll. A. Weidman (PRM 862811, as *Tichothecium pygmaeum*).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, on the SE exposed slope of Mt. Studniční hora, on boulders, on gneiss, on *Lecidea tesselata*, 1255 m, MTB 5260; 21.V.1999, coll. J. K. and P. K. (PRM 758609). - Distr. Havlíčkův Brod, in the town on the monastery wall, MTB 6260; coll. J. Novák (PRM 709812, as *Tichothecium pygmaeum*). - Distr. Havlíčkův Brod, in the Chotěboř town, MTB 6260; 2.IV.1893, coll. E. Bayer (PRM 862806, as *Tichothecium pygmaeum*).

Northern Moravia, Jeseníky Mts., Distr. Bruntál, on a hill above the town of Moravský Beroun, 650 m, MTB 6170; 13.IX.1965, coll. A. Vězda (hb. Vězda, as *Tichothecium pygmaeum* on *Diploschistes scruposus*).

Southern Moravia, Distr. Znojmo, the Podyjí NP, the Vraní skála rock, on mica-schist outcrop, 360 m, MTB 7161; 7.VI.1998, coll. J. K. (PRM 892462). - Distr. Znojmo, the Podyjí NP, in the Havranické vřesoviště heath, on a granite boulder, 320 m, MTB 7161; 4.VI.1998, coll. J. K. (PRM 892456).

Muellerella pygmaea var. *athallina* (MÜLL. ARG.) TRIEBEL

Bibl. Lichenol. 35: 166 (1989)

Ref. CR: Triebel (1989: 172).

Sel. lit.: Triebel (1989: 166-173, tab. 4, figs 20d, 21, 22).

Host lichens in CR: *Acarospora praeruptorum, Arthonia lapidicola, Aspicilia* cf. *calcarea, Aspicilia cinerea, Aspicilia contorta, Aspicilia* sp., *Caloplaca teicholyta, C. variabilis, Lecanora campestris, L. intricata, L. muralis, Lecidella carpathica, Lobothallia radiosa, Porpidia superba, Protoblastenia calva, P. rupestris, Trapelia obtegens.*

Arthonia lapidicola is a new host for this fungus.

Other known hosts (mostly given according to Triebel 1989: 167-168): *Acarospora heufleriana, A. schleicheri, Agrestia hispida, Amygdalaria aeolotera, A. consentiens, A. pelobotryon, Aspicilia calcarea* agg., *A. contorta* subsp. *hoffmanniana, Bellemerea alpina, Caloplaca cerina, C. paulii, Caloplaca* sp., *C. velana, Carbonea atronivea, C. vorticosa, Clauzadea immersa, C. macula, C. monticola, Farnoldia dissipabilis, F. hypocrita, F. jurana, F. micropsis, F. similigena, Farnoldia* sp., *Fulgensia bracteata, Fuscidea kochiana, Immersaria athroocarpa, Lecanora agardhiana, L. albescens, L. concolor, L. diaboli, L. dispersa, L. dispersoareolata, L. marginata, L. novomexicana, L. orbicularis, L. polytropa, L. rupicola, Lecidea auriculata, L. inops, L. planata, L. promiscens, L. promiscua, L. tessellata, L. umbonata, Lecidea* sp., *Lecidella patavina, L. stigmatea, Miriquidica garovaglii, Orphniospora mosigii, Pertusaria* sp., *Placocarpus schaereri, Porpidia cinereoatra, P. contraponenda, P. crustulata, P. macrocarpa, P. speirea, Porpidia* sp., *Protoblastenia incrustans, Rinodina castanomela, Sarcogyne* sp., *Schaereria fuscocinerea, Stenhammarella turgida, Tremolecia atrata.*

Muellerella pygmaea var. *athallina* occurs on a wide range of hosts, most frequently on saxicolous crustose lichens of various systematic positions.

Distribution: According to Triebel (1989: 167-168), Rambold et al. (1991: 280-281) and Triebel et al. (1991: 280-281), this fungus is widely distributed.

EUROPE: Austria, Czech Republic, France, Germany, Great Britain, Iceland, Italy, Norway, Spain, Sweden, Switzerland; ASIA: Nepal; N. AMERICA: Canada, Greenland, Mexico and U.S.A: Wyoming; Utah, Arizona; and AUSTRALASIA: Australia.

Other reports: EUROPE: Austria (Matzer 1993b: 208, Türk and Poelt 1993: 76, Boom et al. 1996: 641), Belgium (Sérusiaux et al. 1999: 52), Finland (Vitikainen et al. 1997: 37), France (Diederich and Roux 1991: 21), Italy: Marettimo (Nimis et al. 1994: 256), Luxembourg (Sérusiaux et al. 1999: 52); ASIA: Russia: Putorana Plateau (Zhurbenko and Hafellner 1999: 75) and N. AMERICA: (Esslinger and Egan 1995: 509).

Specimen (not seen): CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, the Obří důl valley, Čertova zahrádka, on *Porpidia superba* (th.), 1000 m, MTB 5260; VIII.1960, coll. A. Vězda (M, rev. D. Triebel).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Horská Kvilda, on a vertical side of the road-bridge over the Hamerský potok stream, on *Lecidella carpathica*, 1035 m, MTB 6947; 8.VI.1995, coll. J. H. (PRM 758511).

Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, on *Aspicilia contorta*, 435 m, MTB 5947; 1.IV.1999, coll. P. K. and J. K. (PRM 758550). - Distr. Rakovník, BR Křivoklátsko, between Skryje and Šlovice, above the Berounka River, on a spilite rock, on *Aspicilia* sp., 290 m, MTB 6048; 26.VII.1998, coll. J. K. (PRM 892545). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, near the village of Skryje, below the Týřov castle, on a steep rock slope, above the Berounka River, on rhyolite, on *Aspicilia contorta*, 290 m, MTB 6048; 6.VII.1996, coll. J. H. and P. K. (PRM 892182). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on diabasic rocks at the road by the Berounka River, on *Protoblastenia rupestris*, 250 m, MTB 5949; 28.IX.1997, coll. J. K. and P. K. (PRM 892179). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock at the road by the Berounka River, on rhyolite, on *Trapelia obtegens*, 250 m, MTB 5949; 28.IX.1997, coll. P. K. and J. K. (PRM 892469). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a silicite rock, on *Aspicilia contorta*, 250 m, MTB 5949; 28.IX.1997, coll. J. K. and P. K. (PRM 892549). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on W slope, in a mixed forest, on calcareous shale, on *Aspicilia* cf. *calcarea*, 280 m, MTB 5949; 10.I.1998, coll. P. K. and J. K. (PRM 892183). - Distr. Beroun, BR Křivoklátsko, Stará Ves near Hudlice, on diabasic rocks, on *Lecanora muralis*, 320 m, MTB 6049; 10.XI.1996, coll. J. H. and P. K. (PRM 890804). - Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *Aspicilia cinerea* agg., 340 m, MTB 6050; 23.III.1997, coll. J. H. and P. K. (PRM 892163). - Distr. Beroun, LPA Český Kras, near the village of Hostim, on diabasic rocks, on *Lobothallia radiosa*, 260 m, MTB 6050; 25.IX.1998, coll. J. K. (PRM 892533). - The city of Praha, Malá Ohrada, by the Prokopský potok brook, at the foot of Albrechtův vrch hill, on a diabasic rock, on *Acarospora praeruptorum*, 300 m, MTB 5952; 23.IX.1999, coll. J. K. (PRM 758712). - The city of Praha, Jinonice, on diabasic rocks at the upper margin of the Kační quarry, on *Acarospora praeruptorum*, 295 m, MTB 5952; 30.XII.1991, coll. J. H. (PRM 889677). - The city of Praha, Nová Ves, the Hemrovy skály diabasic rocks, on *Lobothallia radiosa*, 300 m, MTB 5952; 20.IV.1988, coll. J. H. (PRM 886313, specimen of *L. radiosa*, together with *Lichenostigma elongata*). - The city of Praha, in the Prokopské údolí valley, near the Nová Ves settlement, Bílé skály rocks, on calcite, on *Protoblastenia calva*, 280 m MTB 5952; 24.IX.1999, coll. J. K. (PRM 758672). - Ibid.: on *Aspicilia contorta* and *Caloplaca variabilis*, 4.X.1999 (PRM 758708). - The city of Praha, in the Prokopské údolí valley, on the S slope of calcareous rocks above the old swimming pool Holyňské koupaliště, on *L. radiosa*, 260 m, MTB 5952; 15.IV.1999, coll. J. K. (PRM 759357). - The city of Praha, in the Prokopské údolí valley, Pustá stráň, on the S slope of calcareous rocks, on the *Arthonia lapidicola* thallus, 280 m, MTB 5952; 2.XI.1999, coll. J. K. (PRM 758714). - The city of Praha, Klukovice, Špičák hill, on the steep W slope of calcareous rocks, on *Aspicilia contorta*, 265 m, MTB 5952; 17.XI.1999, coll. J. K. (PRM 758709). - Ibid.: on *Protoblastenia rupestris*, 17.XI.1999, coll. J. K. (PRM 759358). - The city of Praha, in the Prokopské údolí valley, Děvín rock, on calcite, on *Aspicilia contorta*, 250 m, MTB 5952; 26.IX.1994, coll. J. H. (PRM 758586). - The city of Praha, Velká Chuchle, Homolka nature reserve, on calcareous rocks, on *P. rupestris* (th.), 275 m, MTB 5952; 20.IX.1993, coll. J. H. (PRM 892103).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Velká Úpa, in the Vavřincův důl valley, on a granite boulder in a meadow, on *Lecanora intricata*, 950 m, MTB 5360; 4.V.1997, coll. J. K. (PRM 758710).

Western Moravia, Tišnov, on a slope of Drásovský kopeček hill, on *P. rupestris*, 350 m, MTB 6664; 1.VIII.1988, coll. J. H. and A. Vězda (PRM 891386).

Southern Moravia, Distr. Znojmo, above the Moravský Krumlov town, above the valley of the Rokytná River, on a conglomerate rock, on *Lecanora campestris*, 280 m, MTB 6963; 2.VIII.1988, coll. J. H.

(PRM 889681). - Distr. Znojmo, above the Moravský Krumlov town, above the valley of the Rokytná River, on a slope of Tábor hill, on *Caloplaca teicholyta*, ca. 330 m, MTB 6963; VIII.1963, coll. A. Vězda (hb. Vězda, as *Tichothecium pygmaeum*).

Muellerella pygmaea var. *ventosicola* (MUDD) TRIEBEL

Bibl. Lichenol. 35: 173 (1989)
Pl. 4, fig. 5

Ref. CR: Anders (1924b: 74, as *Tichothecium pygmaeum*).

Sel. lit.: Triebel (1989: 173-175, tab. 4, figs 20e, 23), Matzer (1993b: 207, figs 6-7).

Host lichens in CR: *Rhizocarpon disporum, R. distinctum, R. geographicum, R. lavatum, R. obscuratum, Rhizocarpon* sp.

Other known hosts: *Dimelaena oreina, Ophioparma ventosa, Protoparmelia badia, R. alpicola, R. atroflavescens, R. carpaticum, R. effiguratum, R. frigidum, R. macrosporum, R. reductum, R. sphaerosporum, R. sublucidum.*

Observation: In several specimens *Muellerella pygmaea* var. *ventosicola* was found mixed together with *Endococcus fusiger, E. macrosporus* and *Endococcus* s. l.

Distribution: According to Triebel (1989: 174-175), *Muellerella pygmaea* var. *ventosicola* is known from EUROPE: Austria, the British Isles, Czech Republic, Germany, Greece, Italy, Norway, Spain, Sweden, Switzerland and N. AMERICA: U.S.A: Colorado and Arizona.

Other reports: EUROPA: Austria (Hofmann et al. 1993: 861, Matzer 1993b: 208, Obermayer 1993: 143, Türk and Poelt 1993: 76, Hafellner and Türk 1995: 619), Belgium (Sérusiaux et al. 1999: 53), Poland (Stein 1879: 351, Novák 1888: 64, 1893: 65, both as *Tichothecium gemmiferum*) and N. AMERICA: (Esslinger and Egan 1995: 509).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, on *Rhizocarpon distinctum* (th.), 435 m, MTB 5947; 1.IV.1999, coll. P. K. and J. K. (PRM 758549). - Ibid.: on *R. geographicum* (th.), (PRM 758553, specimen of *Stigmidium fuscatae*). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W exposed stony scree, on rhyolite, on *R. obscuratum* (th.), 330 m, MTB 5949; 31.VIII.1997, coll. J. K. (PRM 891198). - Ibid.: on *Rhizocarpon* sp. (PRM 891200), on *R. distinctum* (th.) (PRM 891199). - Distr. Rakovník, BR Křivoklátsko, below the top of Vosník hill, on a shale rock, on *R. obscuratum* (th.), 380 m, MTB 6048; 23.V.1998, coll. J. K. (PRM 758715). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W slope, in a mixed forest, on a shale rock, on *R. geographicum* (th.), 280 m, MTB 5949; 10.I.1998, coll. P. K. and J. K. (PRM 892153, together with *Endococcus macrosporus*). - Distr. Beroun, BR Křivoklátsko, near the village of Trubín, on the S slope of Trubínský vrch hill, on diabasic rocks, on *R. distinctum* (th.), 320 m, MTB 6050; 21.III.1997, coll. J. H. and P. K. (PRM 890790). - Ibid.: on *R. distinctum*, 16.XI.1996 (PRM 890816, specimen of *Endococcus rugulosus*). - Ibid.: 23.III.1997 (PRM 892160). - Ibid.: on *R. disporum*, 23.III.1997 (PRM 892164). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W slope on stony scree, on quartzite, on *Rhizocarpon* sp., 330 m, MTB 5949; 31.VIII.1997, coll. J. K. (PRM 891200).

Northern Bohemia, Distr. Jablonec nad Nisou, Mt. Bukovec ("Buchberg"), on a basalt rock, on *R. obscuratum*, MTB 5158; 1923, coll. J. Anders [PRM 695294 - Holotypus of *Aspicilia sanguinulenta* (ANDERS)].

Eastern Bohemia, Krkonoše Mts. ("Sudeti occid."), Distr. Semily, above Harrachov, in the Mumlava stream, on a granite boulder, on *R. lavatum*, 900 m, MTB 5258; VII.1959, coll. A. Vězda (hb. Vězda, specimen of *Endococcus fusiger*, as *Tichothecium perpusillum*). - Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, on the SE exposed slope of Mt. Studniční hora, on mica-schist boulder, on *Rhizocarpon geographicum*, 1250 m, MTB 5260; 21.V.1999, coll. J. K. and P. K. (PRM 760474). - Krkonoše Mts., Úpská jáma corrie - Limprichtova skalka rock, on white sterile crust, 1350-1400 m, MTB 5360; 3.VI.1998, coll. Z. Palice, det. J. K. (hb. Palice 981).

Nectriopsis MAIRE

Ann. Mycol. 9: 323 (1911)

Samuels (1998) included 43 species in *Nectriopsis* and presented a thorough account of this genus, characterized predominantly by simple perithecial wall structures and superficial perithecia. Rossman et al. (1999) accepted 39 species of them and made two additional combinations into this genus. They also documented that the genus belongs to the family *Bionectriaceae* of Hypocreales. Three additional biotrophic lichenicolous fungi of this genus were treated by Sérusiaux et al. (1999: 55-56). *Nectriopsis lecanodes* (CES.) DIEDERICH et SCHROERS and *Nectriopsis indigens* (ARNOLD) DIEDERICH et SCHROERS were included, *Nectriopsis micareae* DIEDERICH, P. BOOM et ERNST was described as a new species. Members of this genus may occur on free living fungi, lichenes and myxomycetes. Only *Nectriopsis lecanodes* was collected in the Czech Republic.

Nectriopsis lecanodes (CES.) DIEDERICH et SCHROERS

Lejeunia, Nouv. sér. 162: 56 (1999)

Bas.: *Nectria lecanodes* CES., Herb. Mycol., ed. 2, no. 525 (1863)

Ref. CR: Vězda (1963: 157, as *Nectria lecanodes*).

Sel. lit.: Hawksworth (1978: 185, 186, fig. 3D), Kalb and Hafellner (1992: 76).

Host lichen in CR: *Peltigera horizontalis.*

Other known hosts: *Dendriscocaulon umhausense, Lobaria amplissima, L. meridionalis, L. pulmonaria, L. scrobiculata, L. virens, Nephroma laevigatum, N. resupinatum, N. tangeriense, Nephroma* sp., *Peltigera aphthosa, P. canina, P. didactyla* var. *extenuata, P. leucophlebia, P. malacea, P. membranacea, P. polydactylon, P. praetextata.*

Distribution: EUROPE: Austria (Keissler 1930: 278, Türk and Poelt 1993: 78), British Isles (Hawksworth 1978: 185, Hawksworth et al. 1980: 65), France (Vouaux 1912: 188, Rondon 1970: 741, Etayo and Diederich 1996b: 107), France: Corsica (Hafellner 1994a: 226), Germany (Erichsen 1930: 62, Keissler 1930: 277, Wirth 1994: 17), Lithuania (Motiejūnaité and Miądlikowska 1998: 314), Luxembourg (Boom et al. 1996: 88), Norway (Hafellner 1993: 755, Santesson 1993: 146), Spain (Etayo and Diederich 1996b: 107), Sweden (Santesson 1986: 13, Eriksson 1992: 76, Santesson 1993: 146), Ukraine (Kondratyuk 1999: 36); N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 76, Hafellner 1995c: 56), Spain: Canary Islands (Hafellner 1996a: 5, Hafellner 1995c: 56) and N. AMERI-

CA: (Esslinger and Egan 1995: 510), Canada: British Columbia (Alstrup and Cole 1998: 226).

Specimen examined: CZECH REPUBLIC: Southern Moravia, the city of Brno, near the village of Soběšice, on a ditch margin of a forest path, on *Peltigera horizontalis* (th.), ca. 400 m, MTB 6765; 12.IV.1959, coll. A. Vězda (hb. Vězda).

Nesolechia A. MASSAL.

Misc. Lich.: 43 (1856)

The genus was originally described for the fungus *Nesolechia oxyspora*. Recently this fungus has been treated several times under both, this name and also *Phacopsis oxyspora* (TUL.) TRIEBEL et RAMBOLD. Previously the genus was circumscribed broadly and included such species which are now recognized as belonging to *Carbonea* (HERTEL) HERTEL, *Cecidonia* TRIEBEL et RAMBOLD, *Geltingia* ALSTRUP and D. HAWKSW., *Limoniella* HAFELLNER et NAV.-ROS. and *Phaeopyxis* RAMBOLD et TRIEBEL.

Nesolechia oxyspora (TUL.) A. MASSAL.

Misc. Lich.: 43 (1856)

Syn.: *Lecidea oxyspora* (TUL.) NYL., Mem. Soc. Sci. Nat. Cherbourg 3: 185 (1855)
Phacopsis oxyspora (TUL.) TRIEBEL et RAMBOLD, Nova Hedwigia 47: 300 (1988)

Ref. CR: Suza (1933b: 506).

While investigating the specimen collected by Velenovský (PRM 152230), that is labeled and described as "*Nesolechia oxyspora* VELENOVSKÝ sp. n." (Velenovský 1934: 76), only the lichen *Scoliciosporum chlorococcum* was found. Consequently, the name *Nesolechia oxyspora* VELENOVSKÝ becomes synonymous to *Scoliciosporum chlorococcum*. Also the description of Velenovský is in agreement with characters of *Scoliciosporum chlorococcum*.

Sel. lit.: Triebel and Rambold (1988: 300-304, fig. 8), Alstrup and Hawkoworth (1990: 49).

Host lichen in CR: *Hypogymnia tubulosa*.

Other known hosts: *Everniastrum nepalense, Hypotrachyna flavovirens, H. sinuosa, Melanelia glabra, M. infumata, M. olivacea, M. sorediata, M. subaurifera, Menegazzia* sp., *Neofuscelia loxodes, N. verrucullifera, Parmelia fraudans, P. omphalodes, P. saxatilis, P. sulcata, Parmelina tiliacea, Platismatia glauca, P. norvegica, Punctelia lorentzii, Punctelia subrudecta, Punctelia* sp., *Rimelia reticulata, Xanthoparmelia conspersa, X. mougeotii, X. protomatrae, X. somloënsis, X. tinctina.*

Distribution: The species is distributed worldwide in temperate regions. The records are known from EUROPE: Austria (Triebel and Rambold 1988: 303, Türk and Poelt 1993: 93, both as *P. oxyspora*; Hafellner and Sancho 1990: 373, Hafellner and Mauer 1994: 126, Hafellner and Türk 1995: 619, Hafellner 1998: 158), Belgium (Sérusiaux et al. 1999: 64), British Isles (Hawksworth et al. 1980: 66), Croatia (Hafellner 1998: 158), Estonia (Jüriado et al. 1999: 76), Finland (Triebel and Rambold 1988: 303, as *P. oxyspora;* Vitikainen et al. 1997: 48), France (Hertel 1971: 242, as *Lecidea oxyspora*; Triebel and Rambold 1988: 303 as *P. oxyspora*), France: Corsica (Hafellner 1994a: 227), Germany (Triebel and Rambold 1988: 303, as *P. oxyspora*; Wirth 1994: 17, ibid.: 19, as *P. oxyspora*), Italy (Triebel and Rambold 1988: 303, as *P. oxyspora;* Hafellner 1998: 158), Italy: Sardinia (Nimis and Poelt 1987: 144), Norway (Triebel and Rambold 1988: 303, as *P. oxyspora;* Hafellner 1993: 755, Santesson 1993: 147, Holien and Tønsberg 1994: 72), Spain (Calatayud et al. 1995: 375, Calatayud et al. 1997: 113, Hafellner 1998: 158), Sweden (Alstrup 1991: 66, Santesson 1993: 147); ASIA: Nepal (Triebel and Rambold 1988: 303, as *P. oxyspora*), Russia: (Hertel 1971: 242, as *Lecidea oxyspora*), Putorana Plateau (Zhurbenko 1996: 226, Zhurbenko and Hafellner 1999: 76); AFRICA: Morocco (Keissler 1933: 382, Maire and Werner 1938: 38, Egea 1996: 107), Kenya (Triebel and Rambold 1988: 303, as *P. oxyspora*), Portugal: Madeira (Kalb and Hafellner 1992: 76, Hafellner 1998: 158), Spain: Canary Islands (Santesson 1988: 14, Etayo 1996a: 105, as *Phacopsis oxyspora* var. *oxyspora;* Hafellner 1998: 158), Tunisia (Maire and Werner 1938: 38); N. AMERICA: Canada: British Columbia (Triebel et al. 1991: 282, as *P. oxyspora*, Goward and Ahti 1992: 34, Alstrup and Cole 1998: 226), Greenland (Alstrup and Hawksworth 1990: 49), U.S.A.: Arizona (Triebel et al. 1991: 282, as *P. oxyspora*), California (Hafellner 1998: 158), Massachusetts (Triebel and Rambold 1988: 303, as *P. oxyspora*); S. AMERICA: Bolivia (Hertel 1971: 242, as *Lecidea oxyspora*), Brazil (Triebel and Rambold 1988: 303, as *P. oxyspora*), Chile (Wedin 1994: 308), Peru (Santesson 1994a: 15), Venezuela (Hertel 1971: 242, as *Lecidea oxyspora*; Triebel and Rambold 1988: 303, as *P. oxyspora*) and AUSTRALASIA: Australia (Santesson 1998: 11, as *P. oxyspora* var. *oxyspora*), New Zealand (Maire and Werner 1938: 38).

Note: Unfortunately, we have not yet succeeded in finding this common species in the Czech Republic.

Specimen examined: CZECH REPUBLIC: Northern Moravia, Beskydy Mts., Mt. Smrk, on branches of *Sorbus*, on *Hypogymnia tubulosa* ("*Parmelia tubulosa*"), ca. 1200 m, MTB 5157; VIII.1922, coll. J. Suza, det. K. Keissler (PRM 637376, 637390, specimens of *Hypogymnia tubulosa*).

Opegrapha ACH.

Kongl. Vetensk. Acad. Nya Handl. 30: 97 (1809), nom. cons.

The genus belonging to the family *Roccellaceae* comprises both lichenicolous and lichenized fungi. The European lichenicolous species are keyed in Hafellner (1994b).

Opegrapha rupestris PERS.

Ann. Bot. (red. Usteri) 11: 20 (1794)

Syn.: *Leciographa centrifuga* (A. MASSAL.) REHM, Kryptog.-Fl. Deutschl. 2. ed. 1: 381, (1890)
Opegrapha centrifuga A. MASSAL., Miscell. lichen.: 18 (1856)
Opegrapha persoonii (ACH.) ACH., Method. Lich.: 17 (1803)
Opegrapha saxatilis DC., Flore Franc. 3(2): 312 (1805)
Opegrapha saxicola ACH., Synops. Lich.: 71 (1814)

Ref. CR: Flotow (1839: 16), Veselsky (1858: 258), Novák (1888: 62, 1893: 63), Kovář (1906: 45); as *Opegrapha persoonii*: Mann (1825: 21), Opiz (1825: 57); as *O. saxicola*: Rabenhorst (1870: 65), Novák (1888: 62, 1893: 63), Hilitzer (1926: 44); as *O. diaphora* f. *saxatilis*: Kuťák (1911: 60); as *O. saxatilis*:

Kuťák (1923a: 59, 1927: 40), Redinger (1938: 261); as *O. parasitica* (A. MASSAL.) VĚZDA: Vězda (1970: 224).

Host lichen in CR: *Verrucaria calciseda, Verrucaria* sp.

Other known hosts: *Verrucaria dufourii, V. parmigera, V. parmigerella, V. muralis.*

Distribution: EUROPE: Austria (Redinger 1938: 261, Mayrhofer et al. 1989: 233, Türk and Poelt 1993: 81, Hauck 1994: 88, Boom et al. 1996: 642, Türk and Wunder 1997: 1147), Belgium (Vouaux 1913: 490, as *Leciographa centrifuga*), British Isles (Hawksworth et al. 1980: 68, Purvis et al. 1992: 412, as *O. saxatilis*), Denmark (Alstrup and Søchting 1989: 22, as *O. saxicola*), France (Ozenda and Clauzade 1970: 246, Diederich and Roux 1991: 21, Purvis et al. 1992: 412, all as *O. saxatilis*), Finland (Vitikainen et al. 1997: 37), France (Redinger 1937: 289, as *O. persoonii*), Germany (John 1990: 184, as *O. persoonii*; Kümmerling 1991: 198, Wirth 1994: 17), Italy (Nimis 1993: 461, Puntillo 1996: 130), Italy: Marettimo (Nimis et al. 1994: 256), Luxembourg (Diederich et al. 1991: 34), Norway (Santesson 1993: 151), Poland (Fałtynowicz 1993: 25), Romania (Redinger 1937: 289, Moruzi et al. 1967: 72, both as *O. persoonii*), Slovak Republic (Vězda 1970: 224, as *O. parasitica*; Pišút et al. 1993: 65, 1996: 16, Pišút and Guttová 1998: 40), Spain: Mallorca (Etayo 1996b: 117), Sweden (Purvis et al. 1992: 412, as *O. saxatilis*; Santesson 1993: 151), Turkey (John 1996: 198), Ukraine (Oxner 1956: 233, as *O. saxatilis*; Kondratyuk et al. 1998b: 108); ASIA: Cyprus (Litterski et Mayrhofer 1998: 64), Turkey (John 1996: 198); N. AFRICA: Algeria (Purvis et al. 1992: 412, as *O. saxatilis*), Portugal: Azores (Hafellner 1995c: 60) and N. AMERICA (Egan 1990: 215, Esslinger and Egan 1995: 512).

Note: Vězda's reports of *Opegrapha parasitica* from two collections on *Verrucaria calciseda* (Vězda 1970: 224) belong to the fungus *Opegrapha rupestris* PERS. According to (Hafellner 1994: 18), *O. parasitica* occurring on *Aspicilia calcarea* agg. (Hafellner l.c.) and *O. rupestris* occurring on *Verrucaria* spp. are two different species.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, between Sv. Jan pod Skalou and Karlštejn, near the waterfalls in Srbsko vicinity, in a shaded forest, on moist calcareous rocks, on *Verrucaria calciseda*, MTB 6050; 6.VII.1902, coll. E. Bayer, det. J. K. (PRM 758326).

Eastern Bohemia, Distr. Trutnov, near the village Suchovršice, Zlatá studně by the Úpa River, on calcareous sandstone, on *Verrucaria* sp., on calcareous sandstone, on *Verrucaria* sp., MTB 5461; w. date, coll. V. Kuťák (PRM 758611, as *O. saxatilis*). - Distr. Trutnov, near the village Prachovice, MTB 5461; w. date, coll. V. Kuťák (PRM 758612). - Distr. Chrudim, Železné hory Highlands, Vápenný Podol, on calcite, on *Verrucaria* sp., MTB 6160; 1910, coll. and det. V. Kuťák (hb. Vězda). - Distr. Chrudim, near Sv. Anna ca. 4 km SE of Chrast, on a bank of the Anenský potok brook, on *Verrucaria* sp., MTB 6161; 1908, coll. and det. E. Kalenský (hb. Vězda, as *Opegrapha varia* var. *diaphora* f. *saxatilis*).

Southern Moravia, the city of Brno, near Ochoz, in the valley "Říčky", on *Verrucaria calciseda* (th.), ca. 370 m, MTB 6766; IV.1958, coll. A. Vězda (hb. Vězda, BRA 58, as *O. centrifuga*). - Distr. Blansko, Skalní Mlýn, on *Verrucaria calciseda* (th.), ca. 400 m, MTB 6666; IV.1963, coll. A. Vězda (hb. Vězda, as *O. parasitica*).

Additional specimens examined: SLOVAK REPUBLIC: Eastern Slovakia, Silická planina, Gerlašské skaly, on *Verrucaria* sp., ca. 400 m, 31.V.1966, coll. A. Vězda (BRA 105a, as *Opegrapha centrifuga*). - Nothern Slovakia, Západné Tatry Mts., Oravice, valley Juráňova dolina, on a calcareous rock, on *Verrucaria* sp., 950 m, 29.V.1990, coll. J. H. (PRM 758582).

Phaeopyxis RAMBOLD et TRIEBEL
Notes Roy. Bot. Garden Edinburgh 46: 380 (1990)

This genus was recently revised by Triebel and Rambold (1990). It belongs together with closely related genera *Gelatinopsis* RAMBOLD et TRIEBEL and *Geltingia* ALSTRUP et D. HAWKSW. to Leotiales.

Phaeopyxis punctum (A. MASSAL.) RAMBOLD, TRIEBEL et COPPINS
Notes Roy. Bot. Garden Edinburgh 46: 384 (1990)

Syn.: *Lecidea punctum* (A. MASSAL.) JATTA, Syll. Lich. Ital.: 353 (1900)

Ref. CR: None.

Sel. lit.: Rambold and Triebel (1990: 384-385, fig. 3c).

Host lichens in CR: *Cladonia digitata, C. polydactyla.*

Other known hosts: *Cladonia amaurocraea, C. bacillaris, C. borealis, C. botrytes, C. coccifera, C. coniocraea, C. fimbriata, C. foliacea, C. macilenta, C. parasitica, C. pocillum, C. pyxidata, C. rangiformis, C. uncialis.*

Distribution: EUROPE: Austria (Rambold and Triebel 1990: 385, Hofmann et al. 1993: 865, Türk and Poelt 1993: 95, Santesson 1994b: 15, Hafellner and Türk 1995: 621, Berger et al. 1998: 409), Denmark (Alstrup et al. 1995: 89), Germany (Rambold and Triebel 1990: 385, Wirth 1994: 19), France (Rambold and Triebel 1990: 385), Italy (Rambold and Triebel 1990: 385, Nimis 1993: 394), Norway (Hafellner 1993: 756, Santesson 1993: 165, Holien and Tønsberg 1994: 73, Santesson and Tønsberg 1994: 297), Poland (Fałtynowicz 1993: 27), Sweden (Santesson 1986: 12, as *Lecidea punctum*; Rambold and Triebel 1990: 385, Thor 1992: 26, Santesson 1993: 165, 1994a: 16); N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 76, Hafellner 1995c: 70); N. AMERICA: (Esslinger 1998), Canada (Rambold and Triebel 1990: 385), Canada: British Columbia (Alstrup and Cole 1998: 226) and AUSTRALASIA: Australia (Rambold and Triebel 1990: 385), New Zealand (Rambold and Triebel 1990: 384, 385).

Outside the Czech Republic, *Phaeopyxis punctum* is reported here as a new lichenicolous fungus for the Slovak Republic.

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Plzeň, Brdy Mts., near Chynín, in a forest, on a stump, on *Cladonia polydactyla*, 680 m, MTB 6448; 15.X.1997, coll. Š. Bayerová, det. J. K. (hb. Bayerová).

Southern Bohemia, Šumava Mts., Distr. Prachatice, 3 km S of the settlement Černý Kříž, Mt. Srnčí vrch, in the Jelení vrch nature reserve, on a stump of *Picea abies*, on *Cladonia digitata*, ca. 850 m, MTB 7149; 15.X.1998, coll. J. K. (PRM 758297). - Šumava Mts., Distr. Prachatice, Volary, Mt. Trojmezná hora, spruce forest, on the N slope, on base of an old *Picea*, on phyllocladia of *Cladonia polydactyla*, 1300-1340 m, MTB 7248; 28.VI.1998, coll. Z. Palice, det. J. K. (hb. Palice).

Additional specimen examined: SLOVAK REPUBLIC: Eastern Slovakia, Muránska vysočina Highlands, in the valley Klatná, Mochnata, on *Cladonia polydactyla*, 700 m, VIII.1966, coll. A. Vězda (hb. Vězda, as *Nesolechia punctum*).

Phaeospora HEPP ex STEIN
Kryptog.-Fl. Schlesien 2 (2): 350 (1879)

The genus belongs to *Verrucariaceae*. However, this poorly delimited genus is in need of thorough revision. The members of this genus are similar to the *Merismatium* species. The main difference between these genera should be in halonate spores in *Merismatium* versus the non-halonate spores in *Phaeospora* and usually in the presence of longitudinal septa in *Merismatium*. According to Triebel (1989: 178), the halonate *Phaeospora* spp. in current placement may belong to *Merismatium*.

Phaeospora parasitica (LÖNNR.) ZOPF
Nova Acta Acad. Caes. Leopold.-Carol. Germ. Nat. Cur. 70: 281 (1998)

Ref. CR: Vězda (1963: 155).

Sel. lit.: Vězda (1963: 155-156, fig. 9), Triebel (1989: 230).

Host lichens in CR: *Lecidea* sp., *Rhizocarpon umbilicatum*.

Other known hosts: *Lecanora* sp., *Lecidea scotinodes, Micarea bauschiana, Protothelenella sphinctrinoides, Porpidia speirea, P. tuberculosa, Rhizocarpon obscuratum, R. petraeum, Tephromela atra, Trapeliopsis granulosa*.

Note: *Rhizocarpon umbilicatum* is the type host of this lichenicolous fungus. For further notes see below under *P. rimosicola*.

Distribution: EUROPE: Austria (Hofmann et al. 1993: 865, Türk and Poelt 1993: 95, Boom et al. 1996: 644, Hofmann et al. 1998: 161), British Isles (Hawksworth et al. 1980: 77), Finland (Vitikainen 1991: 41, Vitikainen et al. 1997: 48), France (Rondon 1970: 741), Germany (Wirth 1994: 19), Luxembourg (Diederich 1986: 12), Norway (Santesson 1993: 165), Spain (Renobales 1996: 138), Sweden (Triebel 1989: 230, Santesson 1986: 5, Eriksson 1992: 86, Santesson 1993: 165), Switzerland (Boom et al. 1993: 23) and N. AMERICA: (Esslinger and Egan 1995: 519).

Vězda's report (Vězda l.c.) of this species on *Catolechia wahlenbergii* (as *Buellia pulchella*) from the Slovak Republic perhaps belongs to *Phaeospora catolechiae* ZOPF.

Phaeospora parasitica is recorded here as a new lichenicolous fungus for the Slovak Republic.

Specimens examined: CZECH REPUBLIC: Northern Bohemia, Jizerské hory Mts., Distr. Jablonec n. Nisou, Mt. Bukovec, on a basalt rock, on a sterile thallus of *Lecidea* sp., ca. 990 m, MTB 5158; VII.1960, coll. A. Vězda (hb. Vězda).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, on the E slope of Mt. Studniční hora, on porphyritic rocks, on *Rhizocarpon umbilicatum*, 1000 m, MTB 5260; VII.1959, coll. A. Vězda (hb. Vězda).

Additional specimen examined: SLOVAK REPUBLIC: Northern Slovakia, Vysoké Tatry Mts., Mt. Velká Svišťovka, on mylonitic rocks, on *Rhizocarpon umbilicatum*, 1750-1850 m, 10.VII.1956, coll. A. Vězda (PRM 515648, specimen of *R. umbilicatum*, Vězda: Lich. Bohemosl. exs. 220).

Phaeospora rimosicola (LEIGHT. ex MUDD) HEPP ex STEIN
Kryptog. - Fl. Schlesien 2 (2): 350 (1879)

Bas.: *Microthelia rimosicola* LEIGHT. ex MUDD, Man. Br. Lich.: 308 (1861)
Syn.: *Xenosphaeria rimosicola* (LEIGHT. ex MUDD) ANZI, Comm. Soc. critt. ital. 2(1): 28 (1864)

Ref. CR: Novák (1888: 64, 1893: 65), Schröter (1894: 346), Kovář (1907: 38, as *P.* "*rimisicola*"); as *Xenosphaeria rimosicola*: Stein (1873: 171, 1879: 350).

Sel. lit.: Hawksworth (1985: 164).

Host lichen in CR: *Rhizocarpon petraeum*.

Other known hosts: *Porpidia* sp., *Rhizocarpon grande, Rhizocarpon hochstetteri* s. l., *R. lavatum, R. obscuratum, R. perlutum, R. umbilicatum, Rhizocarpon* sp.

Note: Considering the host spectrum, the report on *Porpidia* sp. may represent a different species.

Observation: *Phaeospora rimosicola* shares several host species with the previously mentioned *P. parasitica*. According to our observation, it is distinguished from *P. parasitica* by smaller ascomata, larger 3-septate ascospores of (15-)16-19(-21) x 5-7 µm in contrast to 4-septate ascospores of 13-16 x 6-7 µm found in the Bohemian specimens of *P. parasitica* and also in the coloration of spores which are pale (grey-) brown in *P. rimosicola* and dark brown in *P. parasitica*.

Distribution: EUROPE: Austria (Türk and Wittmann 1987: 116, Hofmann et al. 1993: 865, Türk and Poelt 1993: 95, Hafellner 1996b: 77, Boom et al. 1996: 644), Belgium (Sérusiaux et al. 1999: 65), British Isles (Hawksworth 1985: 164, as *Microthelia rimosicola*), Denmark: Faeroe Islands (Alstrup et al. 1994: 99), Finland (Vitikainen et al. 1997: 48), France: Corsica (Hafellner 1994a: 227), Norway (Santesson 1993: 165), Poland (Stein 1879: 350, Fałtynowicz 1993: 27), Russia: Novaya Zemlya (Zhurbenko and Santesson 1996: 156, as uncertain report), Slovak Republic (Servít and Černohorský 1935: 14), Sweden (Santesson 1993: 165) and N. AMERICA: (Esslinger and Egan 1995: 519), Canada: British Columbia (Brodo 1995: 158), Greenland (Alstrup and Hawksworth 1990: 51).

The report of *P. rimosicola* on *Arctoparmelia centrifuga* from Greenland by Alstrup and Hawksworth (1990: 51) was previously shown to belong to *Phaeospora arctica* HORÁKOVÁ et ALSTRUP (Horáková and Alstrup 1994: 62).

Specimen (not seen): CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, Čertova zahrádka, on *Rhizocarpon petraeum* (as *R. calcareum*), MTB 5260; w. date, coll. B. Stein (?WRSL).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, 435 m, on *Rhizocarpon petraeum*, MTB 5947; 1.IV.1999, coll. P. K. and J. K. (PRM 758552). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka River, on rhyolite, on *R. petraeum*, 250 m, MTB 5949; 29.VII.1997, coll. P. K. and J. K., rev. J. Hafellner (PRM 891201). - Distr. Beroun, BR Křivoklátsko, Nižbor, ca. 1 km W of the village of Žlubinec, on *R. petraeum*, 260 m, MTB 5950; 1.VII.1998, coll. J. K. and P. K. (PRM 892181, 892473).

Phaeosporobolus D. HAWKSW. et HAFELLNER
Nova Hedwigia 43: 525 (1986)

Only two species of this obligate lichenicolous genus have been described in this originally monotypic genus. Both are

found in the Czech Republic. Among the collections there are several that deviate from the typical features of *Phaeosporobolus alpinus* and *P. usneae*. They have different size of conidia and number of cells in them and they have been found on different, unrelated hosts with those usually specified for both known *Phaeosporobolus* species, i. e. *Flavoparmelia caperata, Parmelia saxatilis, Lecanora chlarotera, L. pulicaris, L. rupicola, Pertusaria corallina* and *Tuckermannopsis chlorophylla. Phaeosporobolus alpinus* was described from *Ochrolechia frigida* and it is found also on corticolous *Ochrolechia* and *Pertusaria* spp. *Phaeosporobolus usneae* typically occurs on *Usnea, Ramalina, Evernia* and *Pseudevernia* spp. Material on other hosts merits further study.

Phaeosporobolus alpinus R. SANT., ALSTRUP et D. HAWKSW.

Medd. Grønl., Bioscience 31: 51 (1990)

Ref. CR: None.

Sel. lit.: Alstrup and Hawksworth (1990: 51-52, fig. 28).

Host lichen in CR: *Pertusaria albescens.*

Other known hosts: Usually on *Ochrolechia* and *Pertusaria* species: *Ochrolechia* cf. *androgyna, O. frigida, O. lactea, O.* cf. *upsaliensis, Pertusaria coriacea, P. dactylina, P. hemisphaerica, P. multipuncta*, but also reported on *Caloplaca ammiospila, C. ferruginea, Lecanora argentata, Physcia caesia, Sphaerophorus globosus, Varicellaria rhodocarpa.*

Distribution: EUROPE: Austria (Berger et al. 1998: 409), British Isles (Hitch 1995: 41), Denmark (Alstrup et al. 1995: 89), France: Corsica (Hafellner 1994a: 227), Norway (Santesson 1993: 165, Holien and Tønsberg 1994: 73), Norway: Spitsbergen (Aptroot and Alstrup 1991: 75, Alstrup and Olech 1993: 38), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 156), Slovak Republic (Lisická 1998: 35), Spain (Etayo and Breuss 1996: 227), Sweden (Alstrup 1991: 66, Santesson 1993: 165, 1994a: 8); ASIA: Russia: Severnaya Zemlya (Zhurbenko and Santesson 1996: 157), Putorana Plateau (Zhurbenko 1996: 226, Zhurbenko and Hafellner 1999: 76), Taymyr Peninsula (Zhurbenko 1996: 226, Zhurbenko and Santesson 1996: 157, Zhurbenko 1998: 158); N. AMERICA: (Egan 1991: 398, Esslinger and Egan 1995: 519), Canada: British Columbia (Alstrup and Cole 1998: 226), Greenland (Alstrup and Hawksworth 1990: 55); S. AMERICA: Argentina, Chile (Wedin 1994: 308) and ANTARCTICA: (Wedin 1994: 308).

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, ca. 0.5 km ENE from the railway-station in Nové Údolí settelment, at a path, on *Pertusaria albescens,* 805 m, MTB 7249; 17.X.1998, coll. J. K. (PRM 758509).

Phaeosporobolus usneae D. HAWKSW. et HAFELLNER

Nova Hedwigia 43: 526 (1986)

Ref. CR: None.

Sel. lit.: Hawksworth and Hafellner (1986, figs 1-2), Diederich (1990: 316, fig. 8).

Host lichens in CR: *Evernia prunastri, Flavoparmelia caperata, Pseudevernia furfuracea, Ramalina pollinaria, Usnea hirta.*

Other known hosts: *Bryoria capillaris, B. fuscescens, Evernia perfragilis, Hypogymnia physodes, Letharia vulpina, Lethariella intricata, Parmeliopsis hyperopta, Physcia caesia, Protousnea magellanica, Ramalina fastigiata, R. fraxinea, Usnea filipendula, U. flammea, U. rigida, U. subfloridana* and it is also reported from *Lichenothelia echinulata, Buellia frigida,* and *B. griseovirens.*

Note: Our collection on *Flavoparmelia caperata* may represent an undescribed species.

Distribution: EUROPE: Austria (Hawksworth and Hafellner 1986: 526, Wittmann and Türk 1987: 393, Hafellner et al. 1992: 117, Hofmann et al. 1993: 865, Türk and Poelt 1993: 95, Hafellner and Türk 1995: 621, Hofmann et al. 1998: 161), British Isles (Hawksworth 1990: 399), Denmark (Alstrup 1993b: 103), Finland (Vitikainen et al. 1997: 48), France: Corsica (Hafellner 1994a: 227), Germany (John 1990: 211, Wirth 1994: 19), Italy (Hawksworth and Hafellner 1986: 526), Luxembourg (Diederich 1989: 249, 1990: 316; Diederich et al. 1991: 36), Norway (Santesson 1993: 165), Slovak Republic (Alstrup 1992: 185), Spain (Calatayud et al. 1995: 376), Sweden (Santesson 1993: 165); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 226, Zhurbenko and Santesson 1996: 157); N. AFRICA: Spain: Canary Islands (Hawksworth and Hafellner 1986: 526, Alstrup and Hawksworth 1990: 52, Hafellner 1995c: 70); N. AMERICA (Diederich 1990: 316, Esslinger and Egan 1995: 519), Canada: British Columbia (Alstrup and Cole 1998: 226), U.S.A.: Michigan (Hawksworth and Hafellner 1986: 526); S. AMERICA: Argentina (Santesson 1994b: 16); AUSTRALASIA: Australia (Alstrup and Hawksworth 1990: 53) and ANTARCTICA: (Olech and Alstrup 1996: 167).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Rokycany, BR Křivoklátsko, near Skryje, on a slope of Strážov hill, on *Usnea hirta,* ca. 465 m, MTB 6048; 28.VI.1997, coll. J. K. and P. K. (PRM 758510).

Southern Bohemia, Distr. Písek, Blatná, near the village of Kocelovice, Kocelovické pastviny nature reserve, on a granite boulder in a meadow, on *Ramalina pollinaria*, ca. 470 m, MTB 6548; 28.V.1988, coll. J. H. (PRM 892649). - Šumava Mts., Distr. Prachatice, 2 km W of the village Kvilda, S of Mt. Lapka, a flood plain spruce forest, on *Pseudevernia furfuracea,* 1100 m, MTB 6947; 14.IX.1999, coll. Z. Pouzar, det. J. K. (PRM 759349, together with *Lichenoconium erodens*). - Šumava Mts., Distr. Prachatice, Strážný, by a road, on the bark of *Acer pseudoplatanus,* on *Evernia prunastri,* 850 m, MTB 7048; 16.III.1996, coll. J. H. (PRM 891382). - Ibid. on *Usnea filipendula,* 16.III.1996 (PRM 758554). - Distr. Jindřichův Hradec, on bank of the Nový Vdovec lake, on the bark of *Quercus robur*, on *Evernia prunastri*, 350 m, MTB 6955; 12.VII.1996, coll. J. H. (PRM 891385, specimen of *Lichenostigma maureri*). - Ibid.: on *Ramalina pollinaria* (PRM 891384, specimen of *Lichenostigma maureri*). - Distr. Jindřichův Hradec, near the Vyšehrad lake, on the bark of *Quercus robur*, on *Evernia prunastri*, 350 m, MTB 6955; 20.V.1998, coll. M. Švecová, det. J. K. (PRM 892147, together with *Lichenoconium erodens*). - Distr. Pelhřimov, between Humpolec and Světlá nad Sázavou, in the village Záběhlice, by a road, on the bark of *Betula verrucosa*, on *Pseudevernia furfuracea*, 550 m, MTB 6358; 6.VII.1997, coll. J. K. and P. K. (PRM 758599).

Western Moravia, Distr. Jihlava, 2 km SW of the village of Plandry, near the confluence of the Bělokámenský potok brook and the Jihlava River, on the bark of *Alnus glutinosa*, on *Evernia prunastri*, 480 m, MTB 6559; 21.VIII.1998, coll. J. K. and P. K. (PRM 892453).

Southern Moravia, Distr. Znojmo, the Podyjí NP, Býčí skála, on granite rocks, on *Flavoparmelia caperata*, 310 m, MTB 7161; 5.VI.1998, coll. J. K. (PRM 892474).

Additional specimen examined: U.S.A.: WASHINGTON, Spokane County, NE of the town Spokane, on the top of Mt. Spokane, on small dead branches of *Abies lasiocarpa*, on *Bryoria capillaris*, 1790 m, 9.VIII.1996, coll. W.L. Culberson; det. J. K. (PRM 891985, Vězda: Lich. rar. exs. 332., specimen of *B. capillaris*).

Phoma SACC.
Michelia 2: 4 (1880)

Although this coelomycetous genus mainly comprises phytopathogenic fungi, a few lichenicolous species are also present. Most of all are severe parasites. An additional, probably undescribed species also exists (see above under *Keissleriomyces sandstedeanus*).

Phoma cytospora (VOUAUX) D. HAWKSW.
Trans. Br. mycol. Soc. 67: 56 (1976)

Ref. CR: None.

Sel. lit.: Hawksworth (1976: 56), Berger (1996: 69).

Host lichen in CR: *Hypogymnia physodes.*

Other known hosts: *Flavoparmelia caperata, Hypotrachyna laevigata, Melanelia fuliginosa, M. olivacea, Menegazzia terebrata, Parmelia saxatilis, P. sulcata, Parmeliopsis ambigua, Parmotrema chinense, Rimelia reticulata.*

Observation: The thallus of *Hypogymnia physodes* in our specimen is considerably deformed. Pycnidia are present in a very great quantity, often arise from bleached, black bordered parts of the thallus and sometimes they can be observed to grow in concentric circles. The conidia are produced in a great mass in pycnidia. Macroscopical symptoms of infection are similar to those caused by *Lichenoconium erodens* on *Parmelia* s. l. and on *Hypogymnia* spp., however, the thalli affected by *L. erodens* are not deformed.

Distribution: EUROPE: Austria (Hafellner et al. 1992: 117, Türk and Poelt 1993: 95, Hafellner 1996b: 78, 1998: 159), British Isles (Hawksworth 1976: 56, Hawksworth et al. 1980: 77, Hawksworth 1981: 51), France (Hawksworth 1981: 51), France: Corsica (Hafellner 1994a: 227), Germany (Wirth 1994: 19), Italy: Sardinia (Nimis and Poelt 1987: 173), Norway (Hafellner 1993: 756), Slovenia (Mayrhofer et al. 1996: 125), Spain (Calatayud et al. 1995: 376), Sweden (Thor 1993: 113, Hafellner 1998: 159), Ukraine (Kondratyuk 1999: 37).

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, ca. 0.5 km ENE from the railway-station in Nové Údolí settelment, at a path, on *Hypogymnia physodes,* 805 m, MTB 7249; 17.X.1998, coll. J. K. (PRM 758512).

Plectocarpon FÉE
Essai Crypt. Écorc. Exot. Off. 1. 151 (1825)

Taxonomic notes on the genus *Plectocarpon* were recently published by Diederich and Etayo (1994). Members of *Plectocarpon* are lichenicolous fungi that grow on Peltigerales.

Plectocarpon lichenum (SOMMERF.) D. HAWKSW.
Lichenologist 16: 86 (1984)

Syn.: *Celidium lichenum* (SOMMERF.) J. SCHRÖT., Krypt. Fl.-Schles. 3(2)/2: 135 (1893)
Lichenomyces lichenum (SOMMERF.) R. SANT., Svensk Bot. Tidskr. 54(4): 501 (1960)
Celidium stictarum TUL., Ann. Sci. Nat. Bot., ser. 3, 17: 121 (1852)
Sticta pulmonacea ACH. ß *pleurocarpa* SCHAER., Lichenoth. Univ.: 450 (1810)

Ref. CR: Palice (1999a: 57); as *Sticta pulmonacea* ß *pleurocarpa*: Opiz and Ortman (1840: 140); as *Celidium stictarum*: Veselsky (1858: 257); as *Lichenomyces lichenum*: Vězda (1970: 222).

Sel. lit.: Santesson (1960: 501-503, as *Lichenomyces lichenum*), Diederich and Etayo (1994: 592, fig. 3), Hawksworth (1983: 21), Martínez and Hafellner (1998: 289-290).

Host lichen in CR: *Lobaria pulmonaria.*

Other known hosts: *Lobaria linita, L. meridionalis.*

Distribution: EUROPE: Austria (Türk and Wittmann 1987: 101, as *Lichenomyces lichenum*; Türk and Poelt 1993: 99), British Isles (Hawksworth et al. 1980: 59, Hawksworth 1983: 21, both as *L. lichenum*; Diederich and Etayo 1994: 592), Denmark: Faeroe Islands (Alstrup et al. 1994: 100), Estonia (Jüriado et al. 1999: 81), Finland (Vitikainen et al. 1997: 50), France (Vouaux 1914: 168, Rondon 1970: 738, both as *Celidium stictarum*; Diederich and Etayo 1994: 592, Etayo and Diederich 1996b: 110), France: Corsica (Hafellner 1994a: 227), Germany (Vouaux 1914: 168, as *C. stictarum*; Erichsen 1930: 61, Wirth 1994: 19), Italy (Nimis 1993: 86), Italy: Sardinia (Nimis and Poelt 1987: 184), Luxembourg (Diederich 1989: 195), Norway (Santesson 1986: 15, 1993: 171), Norway: Spitsbergen (Alstrup and Olech 1993: 38), Poland (Fałtynowicz 1993: 28), Romania (Vězda 1975: 7, as *L. lichenum*), Slovak Republic (Vězda 1970: 222, as *L. lichenum;* Diederich and Etayo 1994: 592), Slovenia (Mayrhofer et al. 1996: 125, Grube et al. 1998: 185), Spain (Alvarez and Carballal 1992: 362, Etayo and Breuss 1996: 227, Martínez and Hafellner 1998: 290; Santesson 1960: 501-502, as *L. lichenum*; Santesson 1994b: 16, Diederich and Etayo 1994: 592, Etayo and Diederich 1996b: 110), Sweden (Santesson 1993: 171), Switzerland (Vouaux 1914: 168, as *C. stictarum*); ASIA: Japan, Russia: Sakhalin (Vouaux 1914: 168, as *C. stictarum*); N. AFRICA: Morocco (Egea 1996: 104, as *C. lichenum*), Portugal: Azores (Hafellner 1995c: 72), Spain: Canary Islands (Santesson 1960: 502, Diederich and Etayo 1994: 592, Hafellner 1995c: 73, Etayo 1996a: 105); N. AMERICA: (Esslinger and Egan 1995: 521), U.S.A.: Alaska (Thomson and Ahti 1994: 156), Canada: British Columbia (Alstrup and Cole 1998: 226) and AUSTRALASIA: New Zealand (Vouaux 1914: 168, as *C. stictarum;* Kondratyuk and Galloway 1994: 27).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Mt. Ždanidla ("Steindelberg"), on the top, on *Fagus sylvatica,* MTB 6946; 10.VIII.1904, coll. E. Bayer (PRM 697705, as *C. stictarum*). - Šumava Mts., Distr. Klatovy, Prášily, on SE slope of Mt. Ždanidla, on *Lobaria pulmonaria*, 1100-1150 m, MTB 6946; 23.V.1996, coll. Z. Palice (PRM 889680).
Southern Bohemia, Šumava Mts., Distr. Prachatice, Mt. Plechý ("Pleckenstein"), on *Lobaria pulmonaria*, MTB 7249; 31.IV.1889, coll. P. Hora (PRM 697703, as *C. stictarum*).
Northern Moravia, Jeseníky Mts. ("Gesenke"), on *Lobaria pulmonaria*, 1861, coll. F. Kalmus (hb. Vězda, as *L. lichenum*).

Polycoccum SAUT. ex KÖRB.
Parerga Lich.: 470 (1865)

The genus belongs to *Dacampiaceae* and currently comprises 33 species, including 3 most recently described, i. e. *Polycoccum clauzadei* NAV.-ROS. et CL. ROUX on *Xanthoria elegans* (Navarro-Rosinés and Roux 1998: 329), *P. minutulum* KOCOURKOVÁ et BERGER (see below) on *Trapelia placo-*

dioides and *P. decolorans* CALATAYUD et RAMBOLD on *Immersaria olivacea* (Calatayund and Rambold 1998).

Polycoccum kerneri J. STEINER

Sitzungsber. Akad. Wiss. Wien, Math.-Naturwiss. Kl. Abt. 1, 102: 162 (1893)

Ref. CR: None.

Sel. lit.: Hawksworth (1994: 341-342, fig. 2).

Host lichen in CR: *Lecidea fuscoatra*.

Known hosts: *Lecidea fuscoatra* s. l. only.

Note: The species is very rarely found and it is known from individual specimens from several countries only. It seems to be strictly confined to *Lecidea fuscoatra* s. l. On host thalli it forms galls but it does not cause them any serious damage.

Distribution: Till present time reported only from EUROPE: France, Great Britain (Hawksworth 1994: 341-342), Greece (Hawksworth and Diederich 1988: 301, Clauzade et al. 1989: 75) and from N. AFRICA: Spain: Canary Islands (Hafellner 1995c: 74, 1996a: 5).

New to Central Europe!

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Bedlno, in quarry, on granite, on *Lecidea fuscoatra* (th.), 485 m, MTB 5847; 4.III.1997, coll. J. H. and P. K. (PRM 890805). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, in the valley, on the SW slope near the confluence of the Úpořský potok stream and the Prostřední potok brook, on *L. fuscoatra*, 350 m, MTB 6048; 3.VIII.1997, coll. P. K. (PRM 758278).

Polycoccum microsticticum (LEIGHT. ex MUDD) ARNOLD

Ber. bayer. Bot. Ges. 1 (Anhang): 132 (1891)

Syn.: *Didymosphaeria microstictica* (LEIGHT. ex MUDD) WINT. Kryptog. Fl.-Deutschl, 2. ed.,1: 430 (1885)

Ref. CR: None.

Sel. lit.: Hawksworth and Diederich (1988: 302-303), Triebel (1989: 231-232).

Host lichen in CR: *Acarospora fuscata*.

Other known hosts: *Buellia stellulata, Acarospora* (*Xanthothalia*) sp., *Acarospora* sp., *Ionaspis lacustris, Rhizocarpon disporum,* (?) *Rhizocarpon* sp.

Ecology: *Polycoccum microsticticum* has been found on lichens growing on siliceous rocks. The Czech recent locality is situated in a limestone area, however, intruding diabasic tufts in limestone rocks are present on the site.

Distribution: EUROPE: Austria (Keissler 1923: 17, as *Didymosphaeria microstictica*; Obermayer 1993: 144, Türk and Poelt 1993: 101), British Isles (Vouaux 1913: 112, Keissler 1923: 17, both as *D. microstictica*; Hawksworth 1983: 5, Hawksworth and Diederich 1988: 303, Hawksworth 1990, Hitch 1996a: 62, 1996b: 45), Germany (Vouaux 1913: 112, Keissler 1923: 17, 1930: 476, both as *D. microstictica*; Wirth 1994: 20), Ireland (Hawksworth and Diederich 1988: 303), Italy (Keissler 1930: 476, as *D. microstictica*), Luxembourg (Sérusiaux et al. 1999: 69), Norway (Keissler 1923: 17, as *D. microstictica*) and N. AMERICA: (Esslinger and Egan 1995: 522), Greenland (Alstrup and Hawksworth 1990: 55), U.S.A.: California (Santesson 1986: 6, Hawksworth and Diederich 1988: 303).

Specimens examined: CZECH REPUBLIC: Central Bohemia, the city of Praha, in the Prokopské údolí valley, on a diabasic rock in limestone close to the old swimming pool Holyňské koupaliště, on *Acarospora fuscata* (th.), 280 m, MTB 5952; 15.IV.1999, coll. J. K. (PRM 758585).

Eastern Bohemia, Distr. Chrudim, Železné hory Highlands, Distr. Chrudim, Vápenný Podol, on shale, on *Acarospora* sp. (th.), MTB 6160; 1909, coll. V. Kuťák (PRM 862804, as *Tichothecium gemmiferum*).

Polycoccum minutulum KOCOURKOVÁ et F. BERGER

Czech Mycol. 52: 171 (1999)
Pl. 6, figs 6, 7

Ref. CR: Kocourková and Berger (1999: 172, 175).

Host lichen in CR: *Trapelia placodioides*.

Known host: Probably restricted to *Trapelia placodioides* only.

Note: The species was recently described from several localities in the Czech Republic and Austria. It was collected on siliceous rocks and on stones in screes in river and brook valleys situated in lowlands. The below mentioned Czech and Moravian localities were already quoted by Kocourková and Berger (1999), one new is added (PRM 890817). In addition, Berger discovered the species in a locality in the České středohoří Mts. in September 1999 (Berger, in litt.). Hafellner (1999b: 520) reported the species from three new localities in Austria.

Distribution: So far only known in Austria and the Czech Republic.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, NNR Velká Pleš, on the W slope of Velká Pleš hill, on rocks, on rhyolite, on *Trapelia placodioides* 490 m, MTB 6048; 3.X.1996, coll. J. H. (PRM 890817, specimen of aff. *Endococcus* on *Aspicilia* sp., also present: *Buellia badia* on *Lepraria* sp.). - Distr. Rakovník, area protecta Křivoklátsko, prope pag. Roztoky, in valle rivuli Klucná, in clivo lapidoso ad merid.- occid. versus, ad saxa rhyolitica, matrix: *Trapelia placodioides*, alt. 280 m s.m., MTB 5949; 31.VIII.1997, leg. P. K. et J. K. (PRM 842975 - Holotypus, hb. Berger 11830 - Isotypus). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka River, on rhyolite, 250 m, MTB 5949; 24.IX.1997, coll. J. K. and P. K. (PRM 891427; 892477, specimen of *Arthonia almquistii*). - Ibid.: on *Trapelia placodioides*, 28.IX.1997, coll. J. K. and P. K. (PRM 758534, specimen of *Roselliniella microthelia*). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W slope in a mixed forest, on shale rocks, 280 m, MTB 5949; 10.I.1998, coll. J. K. and P. K. (PRM 758281).

Western Moravia, Distr. Třebíč, near confluence of the rivers Chvojnice and Oslava, below the Ketkovický hrad castle, on the NE exposed slope covered by boulders, on granulite, 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 892553).

Additional specimen examined: AUSTRIA: Upper Austria, Donautal, Bezirk Grieskirchen, Natternbach, Leitenbachtal, SW exposed rock stream, 420 m, on granite boulders, 26.X.1997, coll. F. Berger (PRM 758497).

Polycoccum pulvinatum (EITNER) R. SANT.
Lichens, lichenicol. fungi Sweden, Norway: 175 (1993)

Syn.: *Polycoccum galligenum* VĚZDA, Čes. Mykol. 23: 107 (1969)

Ref. CR: As *Polycoccum galligenum*: Hawksworth (1975b: 199), Liška (1980: 77), Santesson (1986: 6), Vězda (1969 a: 107, 1969b: 7).

Exs. CR: Vězda: Lich. sel. exs. 775, as *P. galligenum*; Santesson: Fungi lichenicoli exs. 66.

Sel. lit.: Vězda (1969a: 107-108, fig. 2), Hawksworth (1975b: 198-199, fig. 11).

Host lichens in CR: *Physcia caesia, P. dubia, P. wainioi.*

Other known hosts: *Physcia aipolia, P. albinea, P. dimidiata, P. tenella, P. tribacia.*
Also reported on *Xantoria elegans*.

Distribution: EUROPE: Austria, Italy (Hafellner 1994b: 19), British Isles (Hawksworth 1975b: 199, Hawksworth et al. 1980: 81, Hawksworth 1983: 5, Hawksworth and Diederich 1988: 301, all as *P. galligenum*), Denmark: Faeroe Islands (Alstrup et al. 1994: 100, as *P. galligenum*), Estonia (Jüriado et al. 1999: 82), France: Corsica (Hafellner 1994a: 228), Germany (Wirth 1994: 20, Scholz 1995: 391), Italy: Sardinia (Nimis and Poelt 1987: 184, as *P. galligenum*), Luxembourg (Diederich et al. 1991: 37), Norway (Hafellner 1993: 756, Santesson 1993: 175), Slovak Republic (Liška 1980: 77), Slovenia (Grube et al. 1995: 194, as *P. galligenum*), Spain (Calatayud and Barreno 1994: 34, as *P. galligenum*, Santesson 1998: 12), Sweden (Alstrup 1991: 67, Eriksson 1992: 92, both as *P. galligenum*; Santesson 1993: 175; Thor 1993: 114, as *P. galligenum*), Ukraine (Kondratyuk and Kolomiets 1997: 43, Kondratyuk et al. 1998b: 125, Kondratyuk 1999: 37); N. AFRICA: Portugal: Madeira, Spain: Canary Islands (Hafellner 1995c: 74, 1996a: 5); N. AMERICA: (Esslinger and Egan 1995: 522), Greenland (Alstrup and Hawksworth 1990: 54, as *P. galligenum*), Mexico (Triebel et al. 1991: 283, as *P. galligenum*) and S. AMERICA: Chile (Wedin 1994: 308).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Horská Kvilda, on a vertical side of the road-bridge over the Hamerský potok stream, on *Physcia dubia*, 1035 m, MTB 6947; 8.VI.1995, coll. J. H. (PRM 892551). - Ibid: 22.VI.1995, coll. Z. Palice (hb. Palice).

Central Bohemia, Distr. Rakovník, Chrášťany, on the railway viaduct wall, on *Physcia wainioi*, 370 m, MTB 5847; 21.II.1999, J. K. (PRM 758491). - Distr. Rakovník, Kounov, on the cemetery wall, on *Physcia caesia*, 420 m, MTB 5748; 4.X.1997, J. K. and P. K. (PRM 758490). - Distr. Rakovník, BR Křivoklátsko, Krakovec, on SW slope below the Krakovec castle, on shale, on *Physcia wainioi*, 430 m, MTB 5947; 10.IV.1999, coll. P. K. (PRM 758556). - Distr. Rakovník, BR Křivoklátsko, near the village of Skryje, Skryjská jezírka nature reserve, on the steep slope of the Zbirožský potok stream right bank, on dacite, on *Physcia wainioi*, 475 m, MTB 6048; 16.VII.1996, coll. J. H. (PRM 890806).

Southern Bohemia, Distr. Český Krumlov, Zlatá Koruna, on shale, on *Physcia wainioi*, ca. 500 m, MTB 7152; 29.V.1978, coll. J. Liška (BRA 261, as *P. pulvinatum*).

Southern Moravia, Distr. Blansko, Tišnov, on a slope of Drásovský kopeček hill, on limestone, on *Physcia wainioi*, 350 m, MTB 6664; III.1953, coll. A. Vězda (hb. Vězda).- Distr. Znojmo, Horní Dunajovice, in the valley of the Křepička stream, on a slope of Šibeniční kopec hill, on a calcareous rock, on *Physcia caesia*, 250 m, MTB 7062; 16.X.1992, coll. B. Gruna (hb. B. Gruna). - Distr. Znojmo, Moravský Krumlov, in the valley of the Rokytná River, near the village of Budkovice, on *Physcia dubia*, 300 m, MTB 6964; 7.IV.1964, coll. A. Vězda, (Vězda: Lich. sel. exs. 775, PRM 682837 - Holotypus of *P. galligenum*, hb. Vězda - Isotypus). - Ibid.: on *Physcia caesia*, 27.IV.1985, coll. E. Farkas and A. Vězda, det. A. Vězda (hb. Vězda). - Ibid.: on *Physcia caesia*, 2.VIII.1988, coll. J. H. and A. Vězda (hb. Vězda, PRM 890787). - Distr. Brno, on a reservoir bank near the village of Kníničky, on a rock, on *Physcia wainioi*, 250 m, MTB 6765; 15.II.1990, coll. A. Vězda (hb. Vězda). - Distr. Znojmo, near Moravský Krumlov (erroneously as M. Beroun), on Křížová hora hill, on *Physcia wainioi*, 250 m, MTB 6963; 7.VI.1973, coll. I. Pišút (BRA 132). - Distr. Blansko, Křtiny, near the church, on a guard stone, on *P. caesia*, 400 m MTB 6766; 18.V.1986, coll. A. Vězda (hb. Vězda, Santesson: Fungi lichenicoli exs. 66). - Ibid.: on a concrete pillar of a bridge, on *P. wainioi*, 2.III.1989, coll. J. H. and A. Vězda (PRM 889682).

Additional specimens examined: SLOVAK REPUBLIC: Northern Slovakia, Nízke Tatry Mts., Mt. Malá Siná, on a calcareous rock, on *Physcia caesia* (th.), 1360 m, 6.VII.1989, coll. J. H. (PRM 889684). - Southern Slovakia, Distr. Lučenec, Cerová vrchovina Mts., in the village Šurice, near Filakovo, on volcanic tufs, on *Physcia wainioi*, 250 m, 26.V.1981, coll. J. Liška (PRM 889683, BRA 276, both as *P. galligenum*). - Eastern Slovakia, Spišské Podhradie, Dreveník, on *Physcia dubia*, ca. 600 m, VIII. 1972, coll. A. Vězda (BRA 165a).

Pronectria CLEM.
Gen. Fungi 78: 282 (1931)

The genus belongs to the family *Hypocreaceae*. Almost twenty lichenicolous species of this genus are currently known. Most recently described species are *Pronectria xanthoriae* LOWEN et DIEDERICH and *P. terrestris* LOWEN et DIEDERICH (Lowen and Diederich 1990), *P. oligospora* LOWEN et ROGERSON (Lowen 1995) and *P. fissuriprodiens* ETAYO (Etayo and Diederich 1996).

Pronectria robergei (MONT. et DESM.) LOWEN
Mycotaxon 39: 462 (1990)

Syn.: *Nectriella robergei* (MONT. et DESM.) WEESE, Ann. Mycol. 12: 138 (1914)

Ref. CR: None.

Sel. lit.: Hawksworth (1978: 187, as *Nectriella robergei*), Lowen (1990: 461-463).

Host lichens in CR: *Peltigera rufescens.*

Other known hosts: *Peltigera canina, P. didactyla, P. elisabethae, P. lepidophora, P. leucophlebia, P. polydactylon.*
The report on *Solorina* sp. (Obermayer 1993: 143) is referred to *Pronectria solorinae* LOWEN et R. SANT. (ined.) (Hafellner 1999b: 522). With regard to the host specificity of this fungus to *Peltigera* species, the fungus reported on *Ochrolechia frigida* (Santesson 1993: 179) should be revised.

Distribution: This species is widely distributed in temperate areas of EUROPE: Austria (Türk and Poelt 1993: 103, Wittmann and Türk 1994: 200, Hofmann et al. 1995: 234, Hafellner 1999b: 522), British Isles (Hitch 1995: 40, Hawksworth 1980b: 365, 1983: 11), Finland (Vitikainen 1991: 40), Luxembourg (Diederich et al. 1988: 33, Goffinet et al. 1994: 200), Norway (Santesson 1993: 179), Norway: Spitsbergen (Hafellner 1982b: 40), Spain (Martínez and Hafellner 1998: 293), Sweden (Eriksson 1992: 93, Santesson 1993: 179); N. AMERICA: (Esslinger 1997), Greenland (Alstrup and Olech 1993: 38), Canada: British Columbia, U.S.A. (Alstrup and Cole 1998: 226); S. AMERICA: (Alstrup and Cole 1998: 226) and AUSTRALASIA: New Zealand (Alstrup and Cole 1998: 226).

For additional reports see Martínez and Hafellner (1998: 293).

Specimens examined: CZECH REPUBLIC: Western Moravia, Českomoravská vysočina Mts., Distr. Třebíč, ca. 1 km N of the town Třebíč, on *Peltigera rufescens*, MTB 6761; 24.V.1906, coll. R. Picbauer, det. R. Dětinský (BRM, specimen of *Peltigera rufescens*).
Southern Moravia, Distr. Znojmo, the village of Hradiště, MTB 7162; X.1919, coll. A. Oborny, det. R. Dětinský (BRM, specimen of *Peltigera rufescens*).

Refractohilum D. HAWKSW.
Bot. J. Linn. Soc. 75: 204 (1977)

Five lichenicolous species are known within the imperfect genus, one of them *Refractohilum achromaticum* (B. SUTTON) D. HAWKSW. may also grow on wood (Hawksworth 1977a: 205).

Refractohilum peltigerae (KEISSL.) D. HAWKSW.
Bot. J. Linn. Soc. 75: 208 (1977)

Bas.: *Ovularia peltigerae* KEISSL., Beih. Bot. Cbl., Abt.II, 37: 276, Tab. 12, figs 1, 2 (1920)

Ref. CR: Hawksworth (1977a: 208, 1979a: 249); as *Ovularia peltigerae*: Keissler (1930: 592, 1933: 391).

Sel. lit.: Hawksworth (1977a: 206-208, 1979a: 249), Martínez and Hafellner (1998: 293-294).

Host lichen in CR: *Peltigera* sp.

Other known hosts: *Peltigera canina, P. collina, P. didactyla, P. hymenina, P. leucophlebia, P. polydactylon, P. rufescens.*

Distribution: EUROPE: Austria (Keissler 1930: 592, 1933: 391, as *Ovularia peltigerae*; Hawksworth 1977a: 208, Hawksworth 1979a: 249, Türk and Poelt 1993: 109, Türk and Hafellner 1995: 624, Martínez and Hafellner 1998: 293), Bulgaria (Keissler 1930: 592, 1933: 391, both as *O. peltigerae*; Hawksworth 1979a: 249), Denmark: Faeroe Islands (Alstrup et al. 1994: 104), Finland (Keissler 1933: 391, as *O. peltigerae*; Hawksworth 1977a: 208, 1979a: 249), Norway (Santesson 1993: 189, Holien and Tønsberg 1994: 73), Poland (Miądlikowska and Alstrup 1995: 9), Slovak Republic (Keissler 1930: 592, 1933: 391, both as *O. peltigerae*), Sweden (Hawksworth 1979a: 249, Santesson 1993: 189); N. AFRICA: Portugal: Madeira (Hafellner 1995a: 432, Martínez and Hafellner 1998: 294), Spain: Canary Islands (Martínez and Hafellner 1998: 294) and N. AMERICA: (Esslinger and Egan 1995: 527), Canada: British Columbia (Goward and Ahti 1992: 36, Alstrup and Cole 1998: 227), Greenland (Alstrup and Hawksworth 1990: 59).

Specimen (not seen): CZECH REPUBLIC: Moravia, Distr. Velké Meziříčí ("Gross Meseritsch"), near Netín, on *Peltigera* sp., MTB 6561; VII.1910, coll. R. Picbauer, rev. D. Hawksworth (W 1932 no. 1840).

Reichlingia DIEDERICH et SCHEID.
Bull. Soc. Nat. luxemb. 97: 4 (1996)

The genus was established as monotypic for a mitosporic fungus on the basis of a collection made by V. Wirth.

Reichlingia leopoldii DIEDERICH et SCHEID.
Bull. Soc. Nat. luxemb. 97: 5 (1996)

Ref. CR: None.

Sel. lit.: Diederich and Scheidegger (1996: 5-7, figs 2, 3).

Host lichen in CR: unidentified sterile crust of *Lepraria*-type.

Known host: undetermined sterile lichen with *Trentepohlia.*

Distribution: According to Diederich and Scheidegger (1996: 5), this hyphomycete is known from Austria, Germany, Luxembourg and Switzerland. An additional record is reported from Ukraine (Kondratyuk 1999: 37).

Specimen (not seen): CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Mt. Plechý ("Pleckenstein"), on unidentified sterile crust of *Lepraria*-type, MTB 7249; 18.X.1998, coll. V. Wirth and M. Hecklau (hb. Wirth).

Additional specimens examined: GERMANY: Baden, Südschwarzwald, Ühlingen, Mettmatal above mouth in Schlüchttal, 530 m, MTB 8315/2; r 344592 h 528437, 3.IX.1997, coll. V. Wirth (hb. Wirth 30834). - SWITZERLAND: Kanton Thurgau, Basadingen, 1 km W of Dickihof, 8.X.1990, coll. V. Wirth (hb. Wirth 19590).

Roselliniella VAIN.
Lich. Fenn. 1: 214 (1921)

The genus belongs to Sordariales and comprises lichenicolous fungi only. It was revised by Matzer and Hafellner (1990: 53-90) together with other species included in *Rosellinia* s. l.

Roselliniella cladoniae (ANZI) MATZER et HAFELLNER
Bibl. Lichenol. 37: 59 (1990)

Syn.: *Adelococcus cladoniae* (ANZI) KEISSL., Krypt.-Fl. Deutschl., 2.ed., 8: 312 (1930)
Rosellinia cladoniae (ANZI) SACC., Syll. Fung. 1: 275 (1882)

Ref. CR: None.

Sel. lit.: Matzer and Hafellner (1990: 59-65, fig. 6).

Host lichen in CR: *Cladonia pocillum.*

Other known hosts: *Cladonia arbuscula, C. borealis, C. cenotea, C. ciliata* var. *tenuis, C. coniocraea, C. crispata, C. fimbriata, C. floerkeana* coll., *C. furcata, C. luteoalba, C. macilenta, C. phyllophora, C. rangiferina, C. rangiformis, C. sulfurina, Cladonia* sp.

Observation: The fungus in our specimen is characterized by asci always 8-spored, spores 0-1-septate, of only 11-15 x 5-6 µm diam. According to Matzer and Hafellner (1990), the size of spores given for this fungus varies considerably, in dependence on number of spores per ascus, in range of 15-52 x 6-17 µm. Even so, the spores in our specimen are smaller than the lowest dimension given for them, it is no doubt that the fungus belongs to this species.

Distribution: EUROPE: Austria (Matzer and Hafellner 1990: 63, Berger and Türk 1993a: 191, Hafellner and Mauer 1994: 130), Belgium (Diederich et al. 1992: 146), British Isles (Hawksworth 1978: 181, as *Adelococcus cladoniae*; Matzer and Hafell-

ner 1990: 62), France (Vouaux 1912: 205, as *Rosellinia cladoniae*, Keissler 1930: 313, as *Adelococcus cladoniae*; Diederich and Roux 1991: 22), Ireland (Hawksworth 1978: 181, as *A. cladoniae*; Matzer and Hafellner 1990: 63), Italy (Keissler 1930: 313, as *Adelococcus cladoniae*; Matzer and Hafellner 1990: 63), Luxembourg (Santesson 1993: 201, Hafellner 1996a: 6), Sweden (Santesson 1949: 142, Eriksson 1992: 97, Santesson 1993: 201, Hafellner 1996a: 6); N. AFRICA: Spain: Canary Islands (Hafellner 1996a: 6); N. AMERICA: Greenland (Alstrup 1993b: 103) and AUSTRALASIA: Australia: Queensland (Matzer and Hafellner 1990: 64).

Specimen examined: Central Bohemia, the city of Praha, Jinonice, on diabasic rocks at a margin of the Kační quarry, on *Cladonia pocillum*, ca. 300 m, MTB 5952; 2.XI.1999, coll. J. K. (PRM 760471).

Roselliniella microthelia (WALLR.) NIK. HOFFM. et HAFELLNER ined.
Bibl. Lichenol.

Syn.: *Verrucaria podzimekii* SERVÍT, Věstn. Král. Čes. Spol. Nauk, tř. mat.-přír. 1929/13:12 (1930)
Amphoridium podzimekii (SERVÍT) SERVÍT, Čes. lišk. čel. *Verrucariaceae*: 24 (1954)
Phaeosporis podzimekii (SERVÍT) CLAUZADE, DIEDERICH et CL. ROUX, Bull. Soc. linn. Provence, Num. spec. 1: 71 (1989) (invalid. publ.)

Ref. CR: Hoffmann and Hafellner ined.; as *Verrucaria podzimekii*: Servít (1930: 12), Zschacke (1934: 94), Matzer and Hafellner (1990: 122); as *Amphoridium podzimekii*: Servít (1954: 44), as *Phaeosporis podzimekii*: Clauzade et al. (1989: 71).

Host lichens in CR: *Trapelia coarctata, T. obtegens, T. placodioides, Trapelia* sp.

Other known hosts: Until now known only those which are quoted from the Czech Republic.

Distribution: *R. microthelia* is known from Germany, Czech Republic and Poland. Most recently it has been also reported as new for Belgium and the Netherlands (Sérusiaux et al. 1999: 76). It seems to be widely distributed but overlooked.

Specimens examined: CZECH REPUBLIC: Western Bohemia, Krušné hory Mts., Distr. Karlovy Vary, 2 km SE of the Potůčky village, in the valley of the Černá brook, on a periodically submerged boulder, on *Trapelia coarctata*, 880 m, MTB 5542; 4.IX.1999, coll. J. K. (PRM 759359).

Northern Bohemia, LPA Kokořínsko, the quarry N of the Újezd settlement, 1.5 km NNE of Chcebuz, on a weathered sandstone rock, on *Trapelia* sp., 300 m, MTB 5452; 27.X.1997, coll. Z. Palice, det. J. K., rev. N. Hoffmann (hb. Palice).

Central Bohemia, Distr. Beroun, BR Křivoklátsko, Nižbor, MTB 5950; coll. J. Podzimek (PRM 756112 - Holotypus of *Verrucaria podzimekii*). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka River, on rhyolite, on *Trapelia obtegens* and *Trapelia* sp., 250 m, MTB 5949; 24.IX.1997, coll. P. K. and J. K., rev. J. Hafellner (PRM 758533). - Ibid.: on *Trapelia placodioides*, 28.IX.1997, coll. J. K. and P. K. (PRM 758534, together with *Polycoccum minutulum*). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W slope, in a mixed forest, on shale rocks, on *Trapelia* sp., 280 m, MTB 5949; 1.I.2000, coll. J. K. and P. K. (PRM 759360). - The city of Praha, Jinonice, on diabasic rocks at a margin of the Kační quarry, on *Trapelia placodioides*, 295 m, MTB 5952; 2.XI.1991, coll. J. K. (PRM 758713). - The city of Praha, Malá Ohrada, by the Prokopský potok brook, at the foot of Albrechtův vrch hill, on a diabasic rock, on 300 m, MTB 5952; 23.IX.1999, coll. J. K. (PRM 759361).

Northern Moravia, Moravskoslezské Beskydy Mts., Distr. Frýdek-Místek, near Nýdek, in the valley of the Hluchová stream, near the settlement of Filipka, in a meadow on arenaceous stones, on *Trapelia coarctata*, 600 m, MTB 6378; 1.X.1999, coll. J. K. and R. Pohlová (PRM 760478).

Roselliniopsis MATZER et HAFELLNER
Bibl. Lichenol. 37: 97 (1990)

This genus belongs to Sordariales. All four known species are lichenicolous fungi. The genus *Roselliniopsis* was originally established by Matzer and Hafellner (1990) for two of them, i. e. *Roselliniopsis groedensis* (ZOPF) MATZER et HAFELLNER and *R. tropica* MATZER et HAFELLNER. Two additional fungi *R. gelidaria* (MUDD) MATZER and *R. tartaricola* (NYL. ex LEIGHT.) MATZER were included in the genus by Matzer (1993).

Roselliniopsis groedensis (ZOPF) MATZER et HAFELLNER
Bibl. Lichenol. 37: 99 (1990)
Pl. 5, figs 1-4

Bas.: *Rosellinia groedensis* ZOPF, Hedwigia 35: 350 (1896)
Syn.: *Muellerella* (*Rosellinia*) *groedensis* (ZOPF) ARNOLD, Verh. Zool.-Bot. Ges. Wien 47: 393 (1897)
Adelococcus groedensis (ZOPF) KEISSL., Krypt.-Fl. Deutschl., 2.ed., 8: 311 (1930)

Ref. CR: None.

Sel. lit.: Matzer and Hafellner (1990: 99-103), Matzer (1993a: 14-16).

Host lichen in CR: *Ochrolechia lactea.*

Known hosts: The species is probably restricted to *Pertusaria corallina* and *Ochrolechia lactea* only.

Ecology: The species may be found in mountains or boreal areas. Our collection was made in inverse situation under cold and wet conditions in a narrow, clamped valley of a small brook in a rather warm area.

Distribution: Although more than one hundred years ago *Roselliniopsis groedensis* was described, this fungus has been hitherto known from seven collections only. Two most recent records are reported by Sérusiaux et al. (1999: 29) from Luxembourg. The original collections have been often repeated in later contributions: Austria (Matzer and Hafellner 1990: 103, Matzer 1993a: 16, Türk and Poelt 1993: 116), France: Corsica (Hafellner 1994a: 229), Italy (Zopf 1896: 350, Arnold 1897: 394, Vouaux 1912: 206, Keissler 1930: 311, Matzer and Hafellner 1990: 99-103, Matzer 1993a: 16) and Norway (Hafellner 1993: 756, Matzer 1993a: 16, Santesson 1993: 201).

According to Hafellner (1999b: 523), the report from Austria by Hofmann (1988: 23) should be probably referred to *Roselliniopsis tartaricola* and the previous reports from the British Isles (Hawksworth et al. 1980: 8, Hawksworth 1983: 9 and Cannon et al. 1985: 11) had been said by Matzer and Hafellner (1990: 102) to be based on other species of pyrenomycetous fungi.

In addition, Matzer and Hafellner (1990: 99) discovered that the species has never been distributed in any exsiccate collection and therefore the reports on the exsiccate number of 1055 of the Arnold's Lichenes exsiccati given by Keissler (1930:

311) and also the report "Arn. Nr. 1055" of Magnus (1905: 441) are erroneous. The fungus was in reality published under this herbarium number (Arnold 1897: 394).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the NE exposed steep slope, on rhyolite, on *Ochrolechia lactea* (th.), 320 m, MTB 5949; 17.VII.1996, coll. J. H. and P. K. (PRM 891186).

Sagediopsis (SACC.) ex VAIN.

Acta Soc. Fauna Fl. Fenn. 49 (2): 191, 259 (1921)

The notes on the genus *Sagediopsis* were published by Triebel (1993), who regarded the genus as closely related to *Adelococcus* THEISS. et SYD. These two genera from the family *Adelococcaceae* belong to Verrucariales. Two species of *Sagediopsis* are known in the Czech Republic, however, none is known from recent collections.

Sagediopsis aquatica (STEIN) TRIEBEL

Bibl. Lichenol. 35: 112 (1989)

Bas.: *Gongylia aquatica* STEIN, Jahresber. Schles. Ges. Vaterl. Cult. 50: 172 (1873)
Syn.: *Leptorhaphis koerberi* STEIN, Kryptog.-Fl. Schlesien 2(2): 350 (1879)

Ref. CR: Triebel (1989: 112), Rambold et al. (1990: 237), Palice (1999b: 306), Vězda and Liška (1999: 160); as *Gongylia aquatica*: Stein (1873: 172, 1879: 331), Sydow (1887: 272), Zeiske (1902: 434), Suza (1929: 131), Migula (1931: 717), Zschacke (1934: 577), Keissler (1938: 577), Vězda (1959a: 245).

All the Czech reports are referred to the single Stein's collection.

Host lichen in CR: *Koerberiella wimmeriana.*

Known hosts: Restricted to *Koerberiella wimmeriana.*

Note: Triebel (1989: 112) designated a lectotype and proposed the new combination to the genus *Sagediopsis*. The type locality of *Sagediopsis aquatica* is actually situated in the Czech Republic, although Triebel (1989: 112) and Rambold et al. (1990: 237) listed it as Poland. Nevertheless, the type locality of *Leptorhaphis koerberi* "Basalt der Kleinen Schneegrube" is really situated in Poland (Triebel 1989: 112, Rambold et al. 1990: 238).

Distribution: EUROPE: British Isles (Hitch 1996a: 64), France (Rambold et al. 1990: 239), Germany (Wirth 1994: 22), Poland (Stein 1879: 350, Fałtynowicz 1993: 33, Rambold et al. 1990: 239, Aguirre-Hudson 1991: 171) and Sweden (Rambold et al. 1990: 239).

Specimen (not seen): CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts. ("Riesengebirge"), Distr. Semily, Mt. Kotel ("Kesselkoppe"), on a sterile thallus of *Koerberiella wimmeriana*, w. date, MTB 5259; coll. B. Stein, rev. D. Triebel (L-Type herbarium Körber 910,163-1416, Lectotype; UPS - Isolectotype).

Specimen examined: POLAND: Karkonosze Mts., Mały Kociol Snieżny ("Kleine Schneegrube"), on basalt, ca. 1200-1300 m, VII.1928, coll. J. Suza (PRM 751041, as *Gongylia aquatica*).

Sagediopsis barbara (TH. FR.) R. SANT. et TRIEBEL

Bibl. Lichenol. 35: 110 (1989)

Syn.: *Leptorhaphis steinii* KÖRBER ex STEIN, Kryptog. Fl.-Schlesien 2(2): 349 (1879)
Gongylia nadvornikii SERVÍT, Sborn. Klubu Přír. v Brně 15: 90 (1932)
Ophiobolus barbarus (TH. FR.) KEISSL., Ark. Bot. 18/16: 6 (1923)

Ref. CR: Triebel (1989: 110-115).

Sel. lit.: Triebel (1989: 112).

Host lichen in CR: *Porpidia glaucophaea.*

Known host: *Porpidia glaucophaea* and sterile thalli with 2'-O-methylsuperphyllinic acid.

Note: *Leptorhaphis steinii* was lectotypified by Triebel (1989: 110). Aguirre-Hudson (1991: 181) in her monograph of the genus *Leptorhaphis* fully accepted Triebel's solution.

Distribution: *Sagediopsis barbara* is widely distributed in Europe where mainly occurs in mountain and northern areas.

EUROPE: Austria (Triebel 1989: 111, 115; Türk and Poelt 1993: 116, Berger and Türk 1994: 169), British Isles (Hitch 1998: 51), France (Triebel 1989: 114), Germany (Schade 1955: 256, Triebel 1989: 114), Italy (Triebel 1989: 115), Poland (Stein 1888: 149, as *Leptorhaphis steinii*; Keissler 1923: 7, as *Ophiobolus barbarus*; Triebel 1989: 115, Aguirre-Hudson 1991: 181), Slovenia (Triebel 1989: 115), Norway, Sweden (Keissler 1923: 7, as *O. barbarus*; Triebel 1989: 114, Aguirre-Hudson 1991: 184, Santesson 1993: 202), Slovak Republic (Nádvorník 1932: 90, 1936: 55; Suza 1933:1, Keissler 1938: 575, Schade 1955: 256), Ukraine (Nádvorník 1936: 55, Oxner 1956: 177, Kondratyuk et al. 1998b: 140, Kondratyuk 1999: 37) and N. AMERICA: (Esslinger and Egan 1995: 529), Greenland (Alstrup and Hawksworth 1990: 63).

Specimen (not seen): CZECH REPUBLIC: Northern Moravia, Jeseníky Mts., Distr. Jeseník, shale outcrops of small rocks, on the NW slope of Mt. Jelení hřbet, on *Porpidia glaucophaea*, ca. 1100-1200 m, MTB 5869; VIII.1958, coll. A. Vězda, rev. D. Triebel (M).

Specimen examined: SLOVAK REPUBLIC: Eastern Slovakia, Sobrance, Mt. Lisák, near the village of Remetské Hámre, on an andesite rock, *Porpidia glaucophaea*, 790 m, 27.V.1933, coll. J. Nádvorník (PRM 751842, Suza: Lich. Bohemosl. exs. 211, as *Gongylia nadvornikii*).

Sarcopyrenia NYL.

Mém. Soc. Acad. Maine Loire 4: 69 (1858)

The genus *Sarcopyrenia* currently comprises six species, of which three have been described only recently and two additional ones are likely to be described (Navarro-Rosinés et al. 1998). The species of this genus are very destructive parasites of lichens, characterized by superficial to half-immersed ostiolate perithecia in the host thallus, which are among the largest lichenicolous perithecioid ascomata known and by 0-1-5 septate hyaline filiform to cylindrical-sigmoid, rather large spores. Two species of this genus are known so far in the Czech Republic.

Sarcopyrenia cylindrospora (P. CROUAN et H. CROUAN) M. B. AGUIRRE

Candollea 45: 476 (1990)
Pl. 6, figs 1, 2, 3

Syn.: *Leptorhaphis cylindrospora* (P. CROUAN et H. CROUAN) BOISTEL, Nouv. Fl. Lich. 2: 287 (1903)

Ref. CR: None.

Sel. lit.: Navarro-Rosinés and Hladún (1990: 476, fig. 8), Aguirre-Hudson (1991: 161, fig. 54C).

Host lichens in CR: *Acarospora fuscata, Aspicilia contorta, Candelariella vitellina, Lecanora muralis, Lecidea fuscoatra, Physcia caesia, Rhizocarpon geographicum.*

Other known hosts: *Aspicilia* sp., *Lecidella stigmatea.*

Observation: Ascomata are initially semi-immersed, breaking through the cortex of the host thallus, later sessile, partly covered by teeth flaps of host thallus around their base and sometimes with small squamules of the host thallus on the upper part of ascomata, ostiolate, with developed clypeus, black, slightly lichenized; wall of ascomata pseudoparenchymatous, of several layers. Hamathecium of paraphyses 1 µm wide only, evanescent very early, periphyses concentrate around the ostiolum, rapidly widening up to 10 µm. Asci 8-spored, richly present in ascomata, 40-70 x 6-8 µm, the wall of asci very thin. Spores hyaline, 1-septate, 24-35 x 2.5-3 µm bacilliform, with rounded ends and very rarely also with the ends slightly widened up to 3.5(-4) µm. The hymenial gel turns yellow-orange in Lugol's iodine solution.

The perithecia found in the collection from the Šárka valley in Prague, growing on *Physcia caesia* and *Acarospora fuscata,* were slightly larger and some spores in them had slightly widened ends up to 3.5(-4) µm, which has not been observed in any other collection. Algal cells were present in inner ascoma-wall.

Dead and almost destroyed part of host thallus and large conspicuous black perithecia make it easy to detect this fungus in the field.

Distribution: So far the species is known from several records in EUROPE: Austria (Hafellner and Türk 1995: 627, Hafellner 1996b: 79), France (Keissler 1937: 265, as *Leptorhaphis cylindrospora*; Navarro-Rosinés and Hladún 1990: 446, Aguirre-Hudson 1991: 161), France: Corsica (Hafellner 1994a: 229), Spain (Navarro-Rosinés and Hladún 1990: 446, Aguirre-Hudson 1991: 161, Calatayud and Barreno 1994: 36), Sweden (Navarro-Rosinés et al. 1998: 133) and N. AMERICA: (Esslinger 1998), U.S.A.: Tennessee (Navarro-Rosinés et al. 1998: 133).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, at the NW margin of the Chrášťany village, on the wall of a railway viaduct, on *Lecanora muralis, Lecidea fuscoatra* and *Candelariella vitellina*, 370 m, MTB 5847; 13.II.1999, coll. J. K. and P. K. (PRM 758531). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, below the Týřov castle above the Berounka River, on rocks, on rhyolite, on *Rhizocarpon geographicum*, 285 m, MTB 6048; 8.VIII.1999, coll. J. K. and P. K. (PRM 759352). - The city of Praha, Dolní Liboc, Divoká Šárka nature reserve, Šestákova skála hill, below S wall of rock, on lydite, on *Acarospora fuscata* and *Physcia caesia*, ca. 250 m, MTB 5951; 25.XI.1998, coll. J. K. (PRM 892656). - Ibid.: on *Acarospora fuscata* (PRM 758546). - The city of Praha, Malá Ohrada, Albrechtův vrch hill, on the S slope of rocks, on diabasic rocks, on *Aspicilia contorta*, 300 m, MTB 5952; 23.IX.1999, coll. J. K. (PRM 759353).

Sarcopyrenia gibba (NYL.) NYL.

Mém. Soc. Sci. Nat. Cherbourg 5 (2): 337 (1858)

Bas.: *Verrucaria gibba* NYL., Ann. Sci. Nat. Bot., ser. 3, 20: 315 (1853)

Ref. CR: Servít (1926: 158, 1930: 29, 1954: 167), Los (1928: 127), Šmarda (1940: 158), Keissler (1937: 50), Vězda and Liška (1999:161).

Records without identification to the variety level: Austria (Türk and Wittmann 1987: 133, Türk and Poelt 1993: 117), British Isles (Purvis et al. 1993: 556, Hitch 1998: 51), Germany (John 1990: 236), Poland (Fałtynowicz 1993: 33).

Sarcopyrenia gibba var. *geisleri* (BECKH.) NAV.-ROS. et HLADUN

Candollea 45: 476 (1990)
Pl. 6, fig. 5

Ref. CR: Navarro-Rosinés and Hladún (1990: 486), Vězda and Liška (1999:161); as *Sarcopyrenia gibba*: Servít (1926: 158, 1930: 29, 1954: 167), Los (1928: 127), Zschacke (1934: 50), Keissler (1937: 50).

Sel. lit.: Navarro-Rosinés and Hladún (1990: 476-477, 479, 486-487, Pl. 1B, fig. 10).

Host lichen in CR: A sterile crustose lichen.

Known hosts: *Acarospora cervina, Aspicilia calcarea, C. contorta, Caloplaca aurantia, C. citrina, C. flavescens, C. lithophila, C. teicholyta, Caloplaca* sp., *Candelariella aurella, C. medians, Candelariella* sp., *Catillaria chalybeia, Lecania* gr. *erysibe, Lecanora albescens, L. xanthostoma, Lecidella carpathica, Lobothallia radiosa, Protoblastenia rupestris, Sarcogyne regularis* var. *intermedia, Staurothele areolata, Verrucaria nigrescens, Verrucaria* sp.

Distribution: According to Navarro-Rosinés and Hladún (1990: 479, 486-487), this taxon is widespread in Western and Central Europe, where it is known from the Czech Republic, France, Germany, Great Britain, Ireland and Switzerland. More recently it has been also reported from Northern Europe from Norway and Sweden (Santesson (1993: 202) and from Belgium (Sérusiaux et al. 1999: 77). The Belgian collection was previously reported (Gucht and Hoffmann 1990: 114) without any specification to the variety.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Beroun, Srbsko, near the Berounka River, on a calcareous rock, on rests of a sterile crustose lichen, ca. 230 m, MTB 6050; VII.1926, coll. M. Servít (PRM 484804). - Ibid.: 25.VI.1939, coll. J. Suza (PRM 633477, 633478). - The city of Praha, Klukovice, in the Prokopské údolí valley, Špičák hill, on the steep W slope of calcareous rocks, on rests of a sterile crustose lichen, 265 m, MTB 5952; 17.XI.1999, coll. J. K. (PRM 759362).

Specimen compared:
Sarcopyrenia gibba (NYL.) NYL. var. *gibba*
Pl. 6, fig. 4
Sel. lit.: Navarro-Rosinés and Hladún (1990: 476-477, Pl. 1A, figs 9, 11).

SLOVAK REPUBLIC: Northern Slovakia, Nízke Tatry Mts., Liptovský Hrádok, near the village of Malužiná, in the valley of the Svidovský potok stream "Svídový", on a calcareous boulder, ca. 738 m, 16.VI.1931, coll. J. Suza (PRM 633479).

Sclerococcum FR.

Nov. Fl. Suec. 5: 79 (1819): FR., Syst. Mycol. 3(1): 257 (1829)

The genus *Sclerococcum* belongs to imperfect fungi forming sporodochia. All so far known species are obligate lichenicolous fungi. Conidia of *Sclerococcum* are similar to those of *Phaeosporobolus*, but these are produced in conidiomata and possess easily separated cells in conidia. Several new species were recently described: *Sclerococcum epiphytorum* DIEDERICH (Diederich 1990), *S. verrucisporum* ALSTRUP (Alstrup 1993b), *S. serusiauxii* BOQUERAS et DIEDERICH (Boqueras and Diederich 1993), *S. griseisporodochium* ETAYO (Etayo 1995), *S. hawksworthii* ETAYO et DIEDERICH and *S. normandinae* DIEDERICH et ETAYO (Etayo and Diederich 1995), *S. leuckertii* DIEDERICH et SCHOLZ (Diederich and Scholz 1995), *S. montagnei* HAFELLNER (Hafellner 1996c), *S. parmeliae* ETAYO et DIEDERICH (Etayo and Diederich 1996a). Four species are found in the Czech Republic. One potentionally new species is also mentioned.

Sclerococcum epiphytorum DIEDERICH

Mycotaxon 37: 322 (1990)

Ref. CR: None.

Sel. lit.: Diederich (1990: 322-323, figs 11-12).

Host lichen in CR: *Pertusaria albescens*.

Other known host: *Pertusaria hemisphaerica*.

Note: *Sclerococcum epiphytorum* is characterized by 1-3 celled conidia, which are dark brown. Another species, *Sclerococcum simplex* D. HAWKSW., which may also occur on *Pertusaria albescens* (Etayo and Diederich 1996: 427) is distinguished from *S. epiphytorum* by its higher number of cells per conidium and also by reddish brown colour of conidia.

Both collections of *S. epiphytorum* from the Czech Republic as well as the type specimen from Luxembourg (Diederich l.c.) were collected on corticolous *Pertusaria* species.

Distribution: Luxembourg (Diederich 1989: 251, 1990, John 1990: 238) and now also Czech Republic.

The specimens mentioned here are the only records except for the type specimen!

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, NNR Černé a Čertovo jezero, near the Černé jezero lake, on the bark of *Acer*, on *Pertusaria albescens*, ca. 1200 m, MTB 6845; 18.VII.1995, coll. Z. Palice, det. J. H. (hb. Palice). - Ibid.: ca. 1200-1250 m, 21.I.1996, coll. Z. Palice (PRM 889689).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, corrie of the Plešné jezero lake, on *Acer pseudoplatanus*, on thallus of *Pertusaria albescens*, 1200-1250 m, MTB 7249; 19.VI.1995, coll. Z. Palice, det. J. K. (hb. Palice).

Sclerococcum leuckertii DIEDERICH et P. SCHOLZ

Bibl. Lichenol. 57: 113 (1995)

Ref. CR: None.

Sel. lit.: Diederich and Scholz (1995: 113, fig. 1).

Host lichen in CR: *Buellia aethalea*.

Known host: *Buellia aethalea* only.

Distribution: Only known from EUROPE: Denmark (Diederich and Scholz 1995: 115), Germany (Diederich and Scholz 1995: 115, Santesson 1998: 13, Heibel et al. 1998: 178) and Sweden (Diederich and Scholz 1995: 115).

Sclerococcum leuckertii is probably a much more common, but overlooked species. In our specimens it was detected on very small thalli of *B. aethalea*, where only a few apothecia were developed.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, at the top of the Čertova skála rock, on spilite, on *Buellia aethalea*, 350 m, MTB 6048; 1.VI.1996, coll. J. K. and P. K. (PRM 758338). - Distr. Rakovník, BR Křivoklátsko, Krakovec, on SW slope below the Krakovec castle, on shale rocks, 430 m, on *Buellia aethalea*, MTB 5947; 10.IV.1999, coll. P. K. (PRM 758555).

Sclerococcum sphaerale (ACH.) FR.: FR.

Nov. Fl. Suec. 5: 79 (1819)

Pl. 7, figs 1, 2

Ref. CR: Vězda (1963: 158).

Sel. lit.: Vězda (1963: 158), Hawksworth (1975: 223-227), Hawksworth and Jones (1981: 485-489, figs 1-4), Diederich (1990: 322).

Host lichen in CR: *Pertusaria corallina*.

Other known hosts: *Pertusaria ceuthocarpoides, P. dactylina, P. dealbescens, P. pseudocorallina*.

Ecology: Species does not cause any damage to host thalli. In the Czech Republic it has been found in submontane and montane altitudes; in Europe it frequently occurs in alpine regions. It grows on *Pertusaria* spp. occuring on acidic rocks.

Distribution: EUROPE: Austria (Hawksworth 1979a: 250, Türk and Wittmann 1987: 134, Mayrhofer et al. 1989: 242, Wittmann et al. 1989: 470, Hofmann et al. 1993: 871, Obermayer 1993: 144, Hafellner and Türk 1995: 627, Hafellner et al. 1996: 227, Santesson 1998: 13), British Isles (Hawksworth 1975a: 226, 1979a: 250; Hawksworth and Jones 1981: 485), Denmark: Faeroe Islands (Alstrup et al. 1994: 90, 105, Alstrup and Christensen 1999: 27), France (Vouaux 1914: 321, Hawksworth 1975a: 227, 1979a: 250), France: Corsica (Hafellner 1994a: 229), Germany, Iceland, Ireland (Hawksworth 1975a: 227, 1979a: 250), Italy (Hawksworth 1979a: 250), Italy: Sardinia (Nimis and Poelt 1987: 221), Luxembourg (Diederich 1986: 18), Norway (Hafellner 1993: 760, Santesson 1993: 204), Poland (Alstrup and Hawksworth 1990: 64, Alstrup and Olech 1996: 751), Portugal (Hawksworth 1979a: 250, Boom and Giralt 1996: 154), Slovak Republic (Vězda 1963: 158, Hawksworth 1975a: 227), Spain (Hafellner and Sancho 1990: 376, Etayo and Breuss 1996: 227), Sweden (Hawksworth 1975a: 227, 1979a: 250; Santesson 1986: 7, 1993: 204), Switzerland (Hawksworth 1975a: 227, 1979a: 250), Ukraine (Kondratyuk et al. 1998b: 140, Kondratyuk 1999: 37); N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 89, Hafellner 1995c: 88) and N. AMERICA: Greenland (Alstrup and Hawksworth 1990: 64).

Specimens examined [all on *Pertusaria corallina* (th.)]: CZECH REPUBLIC: Central Bohemia, Distr. Příbram, Brdy Mts., Hřebenec nature reserve, on exposed boulder slope of Hřebenec hill, on

siliceous boulders, 755 m, MTB 6448; 28.V.1998, coll. J. K. and Š. Bayerová (hb. Bayerová). - Distr. Příbram, Brdy Mts., Jince, SW of the village of Ohrazenice, on top of Koníček hill, on a conglomerate boulder, 665 m, MTB 6249; 13.III.1998, coll. Š. Bayerová and P. Karlík, det. J. K. (hb. Bayerová). - Distr. Benešov, below the top of Velký Blaník hill, on granite boulders, 620 m, MTB 6355; 24.VI.1995, coll. J. H. (PRM 889687).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Kašperské Hory, on the N slope of Mt. Valy, on granite boulders, ca. 850 m, MTB 6947; 17.V.1999, coll. J. K. (PRM 758591). - Distr. Český Krumlov, Vyšší Brod, on Mt. Luč ridge near Lipno, on a sun exposed granite rock, 820 m, MTB 7351; 28.VI.1996, coll. A. Vězda (PRM 889688).

Northern Moravia, Jeseníky Mts. ("Sudeti orient."), Distr. Jeseník, Rýmařov, Mt. Rabštejn, below the ruin of "Rabštýn" on shale, MTB 6068; 6.V.1956, coll. A. Vězda (hb. Vězda). - Ibid.: ca. 800 m, V.1960, coll. A. Vězda (hb. Vězda). - Jeseníky Mts., Distr. Jeseník, Mt. Vozka, 1370 m, MTB 5969; 4.VII.1947, coll. A. Vězda (hb. Vězda).

Additional specimens examined (all on *Pertusaria corallina*): SLOVAK REPUBLIC: Northern Slovakia, Liptovské hole Mts., in the Jamnická dolina valley, 800 m, VIII.1964, coll. A. Vězda (BRA 58a).- Vysoké Tatry Mts., in the valley Nefcerka, 1600-1800 m, 22.VI.1986, coll. E. Farkas, Z. Kyselová and A. Vězda (BRA 309). - Nízke Tatry Mts., in the Krížska valley, below the N slope of Mt. Chabenec, on granite, 1480 m, 11.VII.1990, coll. J. H. (PRM 889690).

Sclerococcum verrucisporum ALSTRUP

Graphis Scripta 5: 100 (1993)
Pl. 4, fig. 3

Ref. CR: None.

Host lichen in CR: *Bellemerea diamarta.*

Known hosts: *Bellemerea diamarta.*

Observation: The *Sclerococcum* detected in the below cited specimen is characterized by very small, black sporodochia of only 0.3-0.7 mm, composed of 5-8-(10) conidia, formed in basipetal chains, becoming very easily separated, subglobose to mostly globose, dark brown-grey, with rugose, cracked wall, of 4-7 µm diam.

Distribution: *Sclerococcum verrucisporum* was previously only known from the type specimen collected in Sweden (Alstrup 1993b: 100).

Second record of this species!

Specimen examined: CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, in the Obří důl valley, on a granite boulder at a track, on *Bellemerea diamarta* (th.), 1100 m, MTB 5260; 20.IX.1968, coll. A. Vězda, det. J. K. (hb. Vězda, as *Coniosporium physciae*).

Sclerococcum sp.

Ref. CR: None.

Host lichens in CR: *Xanthoparmelia conspersa.*

Observation and notes: Our fungus probably belongs to an undescribed *Sclerococcum*, which is similar to the recently described *Sclerococcum parmeliae* ETAYO et DIEDERICH occurring on corticolous *Parmelia* s. l. (Etayo and Diederich 1996b, Hafellner 1998: 166). However, *Sclerococcum* sp. was found on saxicolous *Xanthoparmelia conspersa*. Unfortunatelly, all collections are poor in sporodochia.

It has been usually found on almost dead parts of this host in mixed infections with other lichenicolous fungi. The conidia in our specimens are very similar in form to those of *Sclerococcum parmeliae*, however, they are distinctly distinguished by the pale aeruginous colour, which is in case of *Sclerococcum parmeliae* grey or brown. Colour of sporodochia is aeruginous as well. *Sclerococcum* sp. needs to be further studied on a rather substantial amount of material.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W slope of Baraník hill, on rhyolite, *Xanthoparmelia conspersa*, 360 m, MTB 5949; 11.X.1998, coll. J. K. and P. K. (PRM 758324, together with *Lichenoconium usneae*).

Western Moravia, Distr. Třebíč, near Náměšť nad Oslavou, on a slope above the Oslava River, near the Lamberk ruin, on granulite rocks, on *X. conspersa*, ca. 350 m, MTB 6863; 7.X.1998, coll. J. K. (PRM 758294, together with *Lichenoconium usneae*). - Distr. Třebíč, near the confluence of the rivers Chvojnice and Oslava, the Ketkovický hrad castle, on granulite rocks, on *X. conspersa*, 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 892647).

Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov reservoir, on the S exposed slope near the "Chvalatická zátoka" creek, on quartzite boulders, on *X. conspersa*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 758527, specimen of *Cornutispora* sp., together with *Abrothallus caerulescens*, *Lichenostigma cosmopolites* and *Weddellomyces xanthoparmeliae*; PRM 758323, together with *W. xanthoparmeliae*).

Scutula TUL.

Ann. Sci. Nat. Bot., ser. 3, 17: 118 (1852), nom. cons. prop. (Jørgensen and Santesson 1993: 885): proposal recommended by the commitee for Fungi (Gams 1996: 310)

The genus *Scutula* belongs to the family *Micareaceae* and it is closely related to those members of *Mycobilimbia* REHM (sensu Wirth 1995), whose ascus is characterized as having a "fuzzy" axial structure of the tholus. Species of the genus *Scutula* are non-lichenized or lichenized lichenicolous fungi. They occur on members of *Cladoniaceae*, *Peltigeraceae* and *Stereocaulaceae*. The species occurring on *Peltigera canina* and *P. horizontalis* groups were recently revised by Triebel et al. (1997) and shown to form at least one of three conidial states: microconidial, mesoconidial of the *Libertiella*-type and macroconidial of the *Karsteniomyces*-type.

Scutula dedicata TRIEBEL, WEDIN et RAMBOLD

Symb. Bot. Ups. 32(1): 327 (1997)

Ref. CR: None.

Sel. lit.: Triebel et al. (1997: 327-328, tab. 1., figs 1, 2).

Host lichen in CR: *Peltigera didactyla.*

Other known hosts: *Peltigera elisabethae, P. rufescens, Peltigera* sp.

Notes: This lichenicolous species was recently described by Triebel et al. (1997) as a new lichenized member of the genus except for the previously only known *Scutula heeri* (HEPP) TREVIS. Both species form epikapylic thallus.

Observation: Macroconidia of the *Karsteniomyces*-type are also present in the specimen mentioned below.

Distribution: EUROPE: Belgium, Germany, ?Monaco, Sweden (Triebel et al. 1997: 327) and N. AMERICA: (Esslinger 1998), U.S.A. Minnesota (Triebel et al. 1997: 327)

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, Nové Údolí, a pasture close to a sandy quarry ca. 0.5 km ENE from the railway station, 48°50' N, 13°48' E, on a decaying thallus of *Peltigera didactyla*, 805 m, MTB 7249; 30.III.1998, coll. Z. Palice (hb. Palice, PRM 758270).

Scutula epiblastematica (WALLR.) REHM
Kryptog. Fl. Deutschl. 2. ed. 1: 294, figs 1-7 (1889)

Ref. CR: Podzimek (1945: 156).

The Velenovský report of *Scutula epiblastematica* (Velenovský 1934: 76) relates to the following *S. miliaris*.

Sel. lit.: Triebel et al. (1997: 328-330, tab.1).

Host lichen in CR: *Peltigera praetextata*.

Other known hosts: *Peltigera canina, P. evanesiana, P. horizontalis, P.* cf. *ponojensis*.

Distribution: EUROPE: Austria, Germany, Great Britain, Finland, Hungary, Italy, ?Monaco, Russia, Slovak Republic, Sweden, AFRICA: Tanzania and N. AMERICA: U.S.A.: Minnesota, New Hampshire, New Mexico (Triebel et al. 1997: 330). Additional reports are known from Poland (Keissler 1933: 393, Fałtynowicz 1993: 34) and Ukraine (Kondratyuk and Kolomiets 1997: 44).

Specimens (not seen): CZECH REPUBLIC: Eastern Bohemia, Distr. Jičín, near Miletín, in forests, on *P. canina*, MTB 5660; VII.1941, coll. J. Podzimek (?). - Distr. Ústí nad Orlicí, between Česká Třebová and Přívrat, in a forest, on *P. canina*, MTB 6064; autumn 1942, coll. J. Podzimek (?).

Specimen examined: CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, near Horní Maršov, in the Vodovodní údolí valley, on mosses growing on soil, on *Peltigera praetextata*, 610 m, MTB 5360; 27.IV.1997, coll. J. K. and P. K. (PRM 892149).

Scutula miliaris (WALLR.) TREVIS.
Spighe Paglie 1: 10 (1853)

Ref. CR: Triebel et al. (1997: 336), Velenovský (1934: 76).

Sel. lit.: Triebel et al. (1997: 333-336, tab.1., figs 9-13, incl. *Karsteniomyces peltigerae*).

Host lichen in CR: *Peltigera rufescens*.

Other known hosts: *Peltigera canina, P. lepidophora, Peltigera* sp.

Notes: For notes on an anamorph (macroconidial state) - of this *Scutula* see under *Karsteniomyces peltigerae* in this paper (p. 88). With regard to the host species and the description, the Suza's collection treated by Velenovský (l. c.) as *Scutula epiblastematica* from "Náměstí" probably relates to *S. miliaris*. The specimen from "Náměšť nad Oslavou" of unknown collector which was examined by Triebel et al. (1997: 336) as *Karsteniomyces peltigerae* (M), the anamorphic state of this *Scutula*, may relate to this Suza's collection or be collected by Picbauer. Both scientists were interested in collecting of lichens and fungi in this area.

Distribution: According to Triebel et al. (1997: 333-336), this species is known in EUROPE: Austria, Czech Republic, Germany, Finland, France, Italy, Russia, Sweden; AFRICA: Kenya; N. AMERICA: U.S.A.: Colorado, Minnesota, New Mexico and in S. AMERICA: Chile.

Other reports (mostly according to Martínez and Hafellner 1998: 294-295): EUROPE: British Isles (Hawksworth 1980b: 366, 1983: 23, Martínez and Hafellner 1998: 294), Denmark (Alstrup 1993a: 63), Denmark: Faeroe Islands (Alstrup et al. 1994: 106), Germany (Wirth 1994: 23), Iceland (Orange 1990: 43), Norway (1993: 205), Poland (Fałtynowicz 1993: 34, Miądlikowska and Alstrup 1995: 9), Spain (Martínez and Hafellner 1998: 295), Sweden (Santesson 1984: 16, 1993: 205), Ukraine (Kondratyuk and Kolomiets 1997: 44, as *Scutula epiblastematica;* Kondratyuk 1999: 37) and N. AMERICA: (Esslinger and Egan 1995: 530), Canada: British Columbia (Goward et al. 1994: 59, Alstrup and Cole 1998: 226).

Specimen (not seen): CZECH REPUBLIC: Western Moravia, Distr. Třebíč, Náměšť nad Oslavou ("Náměstí"), on *Peltigera rufescens*, MTB 6762; III.1930, coll. J. Suza (PRM - not found).

Specimen examined: CZECH REPUBLIC: Western Moravia, Distr. Třebíč, near Dobrá Voda, on *Peltigera rufescens*, MTB 6761; 1903, coll. R. Picbauer, det. J. K. (BRM 132664, specimen of *P. rufescens* var. *incusa*).

Sphaerellothecium ZOPF
Nova Acta Acad. Leopold. - Carol. Germ. Nat. Cur. 70: 184-185 (1897)

The genus belongs to the Dothideales (Triebel 1989, Roux and Triebel 1994) and comprises lichenicolous non-lichenized fungi only. The species of *Sphaerellothecium* are often strong parasites, but several species are parasymbionts.

In 1989 Triebel re-accepted *Sphaerellothecium* as a separate genus (Triebel 1989), after it was for a long time treated as a synonym of *Endococcus* NYL. (Vouaux 1913, Keissler 1930 and Hawksworth 1979b).

A major revision of the circumscription of the genera *Stigmidium* and *Sphaerellothecium* was recently proposed by Roux and Triebel (1994). Fourteen species of true *Stigmidium*, three additional closely related ones, one species of *Lichenochora* and four species of *Sphaerellothecium*, i. e. *Sphaerellothecium araneosum* (REHM ex ARNOLD) ZOPF (type species of the genus), *S. atryneae* (ARNOLD) ROUX et TRIEBEL, *S. coniodes* (NYL.) ROUX et DIEDERICH and *S. propinquellum* (NYL.) ROUX et TRIEBEL were proposed from heterogeneous element which had previously been called *Pharcidia epicymatia* sensu Keissler. A comparison of main distinguishing characters of the species *Sphaerellothecium* and *Stigmidium* which grow in apothecia of various lichens was presented by Roux et al. (1995). Most recently described species in *Sphaerellothecium* are *S. minutum* HAFELLNER (Hafellner 1993), *S. cladoniicola* E. S. HANSEN et ALSTRUP (Hansen and Alstrup 1995), *S. cinerascens* ETAYO et DIEDERICH (Etayo and Diederich 1998), *S. gowardii* ALSTRUP et COLE (Alstrup and Cole 1998) and *S. parmeliae* DIEDERICH et ETAYO (Etayo and Diederich 1998).

Members of *Sphaerellothecium* can be easily misidentified for species with similar characters of the genus *Stigmidium*, especially when some features are not well developed or recognizable. The main distinguishing characters are brown hyphae with a rugose surface, which form a characteristic net on the surface of the host thalli. Hyphae often penetrate living tissue of their hosts. Immersed ascomata possess periphyses of two types, external and internal ones, which sometimes are

very rudimentarly developed; hamathecium is formed of paraphysoids; asci are 8-spored, clavate to subcylindrical with 1- or rarely 3- celled hyaline spores, which are slightly constricted at septa; the cells of spores are of unequal size.

Sphaerellothecium coniodes (NYL.) CL. ROUX et DIEDERICH

Bull. Soc. linn. Provence 45: 527 (1994)

Ref. CR: None.

Sel. lit.: Roux and Triebel (1994: 527-529, figs 73-75), Ihlen (1998: 52-53, figs 6D, 10).

Host lichen in CR: *Baeomyces rufus*.

Known host: *Baeomyces rufus* only.

Ecology: *Sphaerellothecium coniodes* is a parasite which forms a black net of mycelium on the surface of *Baeomyces rufus* thalli with minute semi-immersed ascomata, of 40-60 µm diam.

Distribution: So far, this rare species has been known from the type locality in Finland (Vouaux 1912: 239, Roux and Triebel 1994: 527, Vitikainen 1997: 59), from Luxembourg (Roux and Triebel 1994: 529) and Norway (Ihlen 1998: 53).

New to Central Europe!

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Roztoky, in the valley of the Klucná brook, on a SW exposed stony scree, on rhyolite, on *Baeomyces rufus*, 280 m, MTB 5949; 8.XI.1997, coll. P. K. and J. K. (PRM 891441).

Sphaerellothecium propinquellum (NYL.) CL. ROUX et TRIEBEL

Bull. Soc. linn. Provence 45: 530 (1994)

Ref. CR: None.

Sel. lit.: Roux and Triebel (1994: 530-533, figs 77-79).

Host lichen in CR: *Lecanora carpinea*.

Other known hosts: *Lecanora subcarpinea, L. leptyrodes* only.

Ecology: *Sphaerellothecium propinquellum* is a severe parasite on apothecia and thallus of its hosts that it kills.

Distribution: EUROPE: Austria (Hafellner 1999b: 525), British Isles (Hitch 1995: 41), Finland (Roux and Triebel 1994: 531, Vitikainen 1997: 59), Germany, France, Luxembourg, Sweden (Eriksson 1992: 105, as *Stigmidium congestum*, Roux and Triebel 1994: 531, 533); N. AMERICA: (Esslinger and Egan 1995: 530), U.S.A. (Triebel et al. 1991: 290, as *S. congestum*; Roux and Triebel 1994: 533).

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, near the village of České Žleby, on a slope of Mt. Žlebský vrch, on the bark of *Acer pseudoplatanus*, on *Lecanora carpinea* (ap., th.), 885 m, MTB 7148; 11.V.1996, coll. J. H. (PRM 889696, 889699).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, in the valley Obří důl, on the bark of *Sorbus*, on *Lecanora carpinea* (ap., th.), 810 m, MTB 5260; 21.V.1999, coll. J. K. and P. K. (PRM 760475).

Sphinctrina FR.

Syst. Orb. Veget.: 120 (1825): FR., Elench. Fung. 2: 148 (1828)

The genus *Sphinctrina* was monographed in Europe by Löfgren and Tibell (1979). The species are characterized by absence or possibly poor development of their own thallus. They grow either as parasites or as parasymbionts on their hosts, usually on corticolous or lignicolous lichens. One species, viz. *Sphinctrina leucopoda* is saxicolous. Of the four species known in the Czech Republic, three have been collected only recently.

Sphinctrina anglica NYL.

Mém. Soc. Sci. Nat. Cherbourg 5: 334 (1857)

Syn.: *Sphinctrina microcephala* (SM.) KÖRB., Parerga Lich.: 288 (1861)

Ref. CR: Löfgren and Tibell (1979: 125), Palice (1999b: 323), Vězda (1961: 2, 1963: 158).

Note: Although, there is a number of references on occurrence of this species in the Czech Republic, so far, it has been collected in two localities only.

The following reports of *Sphinctrina anglica* from the Czech Republic do not refer to this fungus:

Vězda (1980a: 8); as *Sphinctrina microcephala*: Körber (1861: 288), Rabenhorst (1870: 13), Novák (1888: 62, 1893: 62), Lettau (1912: 110), Anders (1922: 274), Vězda (1959b: 2); as *Sphinctrina pinicola*: Körber (1861: 288).

Exs. CR: Vězda: Lich. sel. exs. 104, as *Sphinctrina microcephala*. [BM - Neotypus of *Sphinctrina anglica*, designated by Löfgren and Tibell (1979: 122)].

Host lichen in CR: *Pertusaria* sp.

Other known hosts: *Lecanora* sp., *Protoparmelia hypotremella, P. oleagina*.

Distribution: EUROPE: Austria (Löfgren and Tibell 1979: 125, Türk and Wittmann 1987: 135, Wittmann and Türk 1987: 394, Vězda 1989a: 2, Hofmann et al. 1993: 872, Türk and Poelt 1993: 120, Boom et al. 1996: 647, Aptroot et al. 1997: 421, Santesson 1998: 16), British Isles (Nylander 1860: 143, Löfgren and Tibell 1979: 125, Hawksworth et al. 1980: 93, Purvis et al. 1992: 569), Finland (Löfgren and Tibell 1979: 125, Vitikainen et al. 1997: 59), France (Nylander 1860: 144, as *S. microcephala*), Germany (Löfgren and Tibell 1979: 125, Wirth 1994: 23, Aptroot et al. 1997: 421), Italy (Löfgren and Tibell 1979: 125, Nimis 1993: 659), the Netherlands (Aptroot et al. 1997: 421, 423), Poland (Fałtynowicz 1993: 34), Romania (Moruzi et al. 1967: 58, as *S. microcephala*), Sweden (Löfgren and Tibell 1979: 125, Santesson 1993: 207, Rydberg 1997: 49, Nordin and Hermansson 1999: 20), Switzerland (Löfgren and Tibell 1979: 125), Ukraine (Kondratyuk et al. 1998b: 142, Kondratyuk 1999: 37); N. AFRICA: Portugal: Madeira, Spain: Canary Islands, (Hafellner 1995c: 90) and N. AMERICA: (Nylander 1860: 143, Esslinger and Egan 1995: 531), U.S.A.: Minessota (Triebel et al. 1991: 288).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice Volary, Nové Údolí, abandoned

community Krásná hora, by the Czech-German border, on wood of a dead cf. *Sorbus*, 900 m, MTB 7148; 15.IV.1995, coll. and det. Z. Palice (hb. Palice). - Ibid.: 23.VI.1995, coll. Z. Palice (hb. Palice). - Distr. Jindřichův Hradec, near the village of Malíkov nad Nežárkou, by a field path, on the bark of *Fraxinus excelsior*, on *Pertusaria* sp., 400 m, MTB 6956; 15.VII.1961, coll. A. Vězda (Vězda: Lich. sel. exs. 104, PRM 566753 - Isoneotypus, as *Sphinctrina microcephala*).

Sphinctrina leucopoda NYL.
Syn. Lich. 1 (2): 144 (1860)

Syn.: *Sphinctrina kylemoriensis* (LARBAL. ex LEIGHT.) CROMB., Journ. Bot., N. S. 11: 274 (1882)

Ref. CR: Löfgren and Tibell (1979: 127), Kalb et al. (1995: 214); as *Sphinctrina kylemoriensis*: Vězda (1963: 157).

Sel. lit.: Tibell (1987: 258-259, fig. 195).

Host lichens in CR: *Diploschistes scruposus, Ochrolechia lactea.*

Other known hosts: *Haematomma fenzlianum, Lecanora rupicola, Ochrolechia pallescens, O. parella, Pertusaria coccodes, P. pertusa, P. rupestris, P. spilomantha, Rinodina macrospora* and *Rhizocarpon geographicum.*

Ecology and observation: *Sphinctrina leucopoda* is usually a parasitic species occurring on *Pertusaria* species, and more rarely on other crustose lichens. It prefers well-lit situations. It growsm usually on a bark, but is found on rocks as well. It is distributed in temperate areas with slightly oceanic climate. Almost all the Czech and Moravian collections have been found in habitats with increased air humidity due to the proximity of water sources, such as brooks or rivers in warm areas, where it grows on outcrops of rocks.

Although, three lichenicolous fungi, i. e. *Karschia talcophila, Lichenostigma rugosa* and *Sphinctrina leucopoda* were found together in the mixed infections on the host thallus of *Diploschistes scruposus*, no serious damage of the host thallus was found. Hafellner and Türk (1995: 628) reported the occurrence of *Sphintrina leucopoda* on *Lecanora rupicola,* but the Czech populations have never been seen to grow on this host, although it was common in most of the localities where *S. leucopoda* was collected. *Sphinctrina leucopoda* grew on such sites on *Diploschistes scruposus* and *Ochrolechia lactea* only.

Distribution: According to Kalb et al. (1995: 214) and Tibell (1987: 259), the species is widely distributed in the Northern Hemisphere and it is also recorded in Southern Hemisphere.

EUROPE: Austria (Hafellner and Türk 1995: 628), British Isles, Germany (Löfgren and Tibell 1979: 127, Kalb et al. 1995: 214), France (Löfgren and Tibell 1979: 127, Bricaud et al. 1991: 150, Diederich and Roux 1991: 22, Kalb et al. 1995: 214), France: Corsica (Hafellner 1994a: 230), Italy (Nimis 1993: 659, Puntillo 1996: 181), Italy: Sardinia (Nimis and Poelt 1987: 224), Luxembourg (Diederich 1986: 17, Tibell 1997: 295), Portugal (Boom and Giralt 1996: 167), Slovak Republic (Demeš 1975: 127, as *S. kylemoriensis*), Spain (Löfgren and Tibell 1979: 127, Kalb et al. 1995: 214), Sweden (Santesson 1960: 518, Löfgren and Tibell 1979: 127, Thor 1993: 114, Kalb et al. 1995: 214); N. AFRICA: Spain: Canary Islands (Etayo 1996a: 107, Hafellner 1995c: 90); N. AMERICA: (Esslinger and Egan 1995: 531), U.S.A.: Arizona (Kalb et al. 1995: 214), Virginia (Nylander 1960: 136) and AUSTRALASIA: Australia: Tasmania (Tibell 1987: 258, Kalb et al. 1995: 214).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, on *Diploschistes scruposus,* 435 m, MTB 5947; 14.IX.1996, coll. J. H. (PRM 889697). - Ibid.: 26.I.1997, coll. J. H. (PRM 890789). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on the W slope of Baraník hill, on rhyolite, *D. scruposus,* 360 m, MTB 5949; 16.XI.1998, coll. J. K. and P. K. (PRM 758314). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on the W slope, in a mixed forest, on shale outcrops, on *D. scruposus,* 280 m, MTB 5949; 17.I.1998, coll. J. K. and P. K. (PRM 892102). - Distr. Rakovník, BR Křivoklátsko, Lánská obora game reserve, Lánský luh, on rhyolite outcrops of small rocks, on *D. scruposus*, 360 m, MTB 5949; 27.VI.1998, coll. J. K. and P. K. (PRM 892162, together with *Karschia talcophila* and *Lichenostigma rugosa*).

Southern Bohemia, Distr. Pelhřimov, Telč, near railway station, on shale, on *D. scruposus*, ca. 600 m, MTB 6858; V.1995, coll. A. Vězda (hb. Vězda).

Southern Moravia, Distr. Znojmo, the Podyjí NP, near the village of Čížov, on phylite, on *D. scruposus,* ca. 420-440 m, MTB 7161; 1993, coll. B. Gruna, det. A. Vězda (hb. Gruna). - Distr. Brno, Ivančice, near the village of Biskoupky, in the valley of the Jihlavka River, on granulite rocks, on *Ochrolechia lactea,* ca. 250 m, MTB 6963; VIII.1947, coll. and det. A. Vězda (hb. Vězda).

Sphinctrina tubaeformis A. MASSAL.
Mém. Lichenogr.: 155 (1853)

Ref. CR: Körber (1855: 305), Veselsky 1858: 258), Suza (1944a: 11), Vězda (1963: 158).

Sel. lit.: Tibell (1987: 259-261, fig. 196).

Host lichen in CR: *Pertusaria* sp.

Other known hosts: *Pertusaria pustulata, P. leioplaca.*

Ecology: According to Tibell (1987: 260), *Sphinctrina tubaeformis* usually grows on the thalli of *Pertusaria* spp. and on unidentified crustose lichens growing on the bark of various trees. More rarely it occurs on rocks.

Distribution: According to Tibell (1987: 260), the species is widely distributed in Europe, Asia, Africa, and North, Central and South America. It is also known in Australasia and Oceania.

EUROPE: Austria (Löfgren and Tibell 1979: 133, Türk and Poelt 1993: 120, both as *S. tubiformis*; Berger and Türk 1993b: 679), British Isles (Hawksworth et al. 1980: 93, as *S. tubiformis*, Purvis et al. 1992: 570), France (Löfgren and Tibell 1979: 133, as *S. tubiformis*), Germany (Wirth 1994: 23, as *S. tubiformis*), Italy (Löfgren and Tibell 1979: 133, Nimis 1993: 659, Puntillo 1996: 181, all as *S. tubiformis*), Italy: Sardinia (Nimis and Poelt 1987: 224, as *S. tubiformis*), Poland (Fałtynowicz 1993: 34), Portugal (Löfgren and Tibell 1979: 133, as *S. tubiformis*), Slovak Republic (Vězda 1963: 158, Tibell 1979: 133); N. AFRICA: Portugal: Azores, Madeira, Spain: Canary Islands (Hafellner 1995c: 90); S. AFRICA: Rwanda, Tanzania (Tibell 1981b: 163); N. AMERICA: (Tibel 1987: 259, Esslinger and Egan 1995: 531), U.S.A.: Hawaii (Magnusson 1956: 248), Minessota (Triebel et al. 1991: 288); S. and C. AMERICA: (Purvis et al. 1992: 570); AUSTRALASIA: New Caledonia (Tibell 1987: 261), New Zealand (Tibell 1987: 259, 261), Australia: New South Wales, Victoria, Tasmania (Tibell 1987: 261) and OCEANIA: Fiji (Purvis et al. 1992: 570).

Specimen examined: CZECH REPUBLIC: Western Moravia, Distr. Žďár nad Sázavou, below Mt. Žákova hora, on the bark of *Fagus*,

on *Pertusaria* sp., ca. 700 m, MTB 6361; V.1907, coll. F. Kovář, det. A. Vězda (hb. Vězda).

Sphinctrina turbinata (PERS.: FR.) DE NOT.
Giorn. Bot. Ital. 2: 314 (1846)

Syn.: *Sphinctrina gelasinata* (WITH.) ZAHLBR., Cat. Lich. Univ. 1: 654 (1922)

Ref. CR: Servít (1910: 12), Suza (1922: 15), Löfgren and Tibell (1979: 136); as *S. gelasinata*: Suza (1925: 81), Vězda (1957a: 74).

Host lichen in CR: *Pertusaria* sp.

Other known hosts: *Opegrapha gyrocarpa, Pertusaria flavida, P. leioplaca, P. pertusa.*

Distribution: EUROPE: Austria (Löfgren and Tibell 1979: 135, Türk and Wittmann 1987: 135, Wittmann and Türk 1989: 175, Türk and Poelt 1993: 120, Berger and Türk 1993b: 679, Türk and Breuss 1994: 94, Hafellner 1996b: 79), British Isles (Löfgren and Tibell 1979: 136, Hawksworth et al. 1980: 93, as *Sphinctrina tubiformis*, Purvis et al. 1992: 570), Denmark (Löfgren and Tibell 1979: 136), Finland (Löfgren and Tibell 1979: 136, Vitikainen et al. 1997: 59), France (Ozenda and Clauzade 1970: 210, as *S. gelasinata*; Löfgren and Tibell 1979: 136), France: Corsica (Hafellner 1994a: 230), Germany (John 1990: 240, Wirth 1994: 23, Hauck 1995a: 216), Greece, Hungary (Löfgren and Tibell 1979: 136), Italy (Löfgren and Tibell 1979: 136, Vězda 1989b: 6, Nimis 1993: 659, Puntillo 1996: 182), Italy: Marettimo (Nimis et al. 1994: 256), Italy: Sardinia (Nimis and Poelt 1987: 224), Luxembourg (Diederich 1986: 2, 1989: 212), Monaco (Löfgren and Tibell 1979: 136), Norway (Löfgren and Tibell 1979: 136, Santesson 1993: 208), Poland (Fałtynowicz 1993: 34), Portugal (Löfgren and Tibell 1979: 136, Boom and Giralt 1999: 191), Romania (Moruzi et al. 1967: 58, Rondon 1970: 743, both as *S. gelasinata*; Löfgren and Tibell 1979: 136, Zamfir et al. 1998: 194), Russia: Ural-Novaya Zemlya (Andreev et al. 1996: 152), Ural (Rjabkova 1998: 85), Slovenia (Grube et al. 1998: 185), Sweden (Löfgren and Tibell 1979: 136, Tibell 1981a: 63, Santesson 1993: 208, Knutsson et al. 1999: 47), Switzerland (Löfgren and Tibell 1979: 136), Turkey (John 1996: 209), Ukraine (Oxner 1956: 326, Titov 1998b: 91, Kondratyuk et al. 1998b: 142, Kondratyuk 1999: 38); ASIA: Russia: Sakhalin (Tibell 1990: 8), Eastern Sayan (Sedelnikova 1997: 145); N. AFRICA: Portugal: Madeira (Hafellner 1995c: 90), Spain: Canary Islands (Etayo 1996a: 107, Hafellner 1995c: 90) and N. AMERICA: (Esslinger and Egan 1995: 531), Canada: Ontario (Tibell 1975: 60), U.S.A.: Hawaii (Magnusson 1956: 248, as *S. gelasinata*), Michigan (Tibell 1975: 61), Minnesota (Triebel et al. 1991: 288).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, a remainder of a scree forest on the left side of the road from Záhvozdí to Arnoštov (ca. 3 km from the village of Záhvozdí), on the bark of a dead *Ulmus*, on *Pertusaria* sp., 800 m, MTB 7149; 21.X.1994, coll. and det. Z. Palice (hb. Palice). - Šumava Mts., Volary, Mt. Stožec on the S slope, on the border of the Stožec nature reserve, on the bark of *Fagus*, on *Pertusaria* sp., 1020 m, MTB 7148; 22.X.1994, coll. and det. Z. Palice (hb. Palice).

Spirographa ZAHLBR.
Natürl. Pflanzenfam., ed. 1, I/1:96 (1903)

Until recently *Spirographa* was treated as a monotypic genus for *Spirographa fusisporella* (NYL.) ZAHLBR., however Holien and Triebel (1996) described a second species *Spirographa vinosa*. Both may occur on the *Pertusaria* and *Ochrolechia* species.

Spirographa fusisporella (NYL.) ZAHLBR.
Natürl. Pflanzenfam., ed. 1, I/1:96 (1903)

Syn.: *Spilomela vermifera* (LEIGHT.) KEISSL., Beih. Bot. Cbl. Abt.2, 37: 272 (1920)
Spilomela ascaridiella (NYL.) D. HAWKSW., Notes Roy. Bot. Garden Edinburgh 38: 175 (1980)
Pleospilis ascaridiella (NYL.) D. HAWKSW., Lichenologist 15: 22 (1983)

Ref. CR: None.

Sel. lit.: Hawksworth (1980a: 175-176, fig. 5, as *Spilomela ascaridiella*), Keissler (1930: 221-222, as *Spilomela vermifera*), Sherwood-Pike (1987: 171-172), Holien and Triebel (1996: 311, fig. 3 B, tab. 1).

Host lichen in CR: *Parmeliopsis ambigua.*

Other known hosts: *Aspicilia* sp., *Certaria sepincola, Fuscidea gothoburgensis, Haematomma africanum, H. persoonii, Lecanora horiza, L. sienae, Melanelia olivacea, Ochrolechia tartarea, Parmelina carporrhizans, Pertusaria albescens, P. amara, P. corallina, P. flavicans, P. hymenea, P. pertusa, P. rupicola, Phlyctis agelaea, ? Porpidia* sp., *Rinodina* sp., *Xylographa vitiligo.*

Considering the host spectrum compiled by Kalb et al. (1995: 214-215) from the literature, *Parmeliopsis ambigua* is a new host of *Spirographa fusisporella.*

Notes: The references to iconography and synonyms are reported by Kalb et al. (1995: 214-215), who also reported many references on distribution and host spectrum to this fungus.

Observation: Our collection of this odontotremoid fungus is characterized by erumpent apothecia when mature, at the beginning perithecioid, thin walled asci 16-32 - spored, 50-64 x 11-14 µm diam., filiform paraphyses 1 µm wide, 1-septate sigmoid spores 22-30 x 1.5-2.5 µm, spirally twisted in asci. None *Spirographa*-type globose conidiomata with bacilliform hyaline conidia were observed.

Spirographa vinosa, the second species of this genus, is distinguished by 8-spored asci mainly and by the occasionally monilliform paraphyses. Its characters, K+ purple and aeruginous reactions of apothecial pigments lack in *S. fusisporella.*

Lichenoconium erodens occurred together in a mixed infection with *S. fusisporella* in discoloured yellow parts of the host thalli of *Parmeliopsis ambigua.* Giralt (1996: 371) observed a mixed infection together with *Bispora christiansenii* in apothecia of *Lecanora horiza.*

Distribution: According to Kalb et al. (1995: 214), *Spirographa fusisporella* is known from EUROPE: Austria, British Isles, Denmark, Germany, France, Italy, Macedonia, Norway, Sweden, Spain; C. AMERICA: Cuba; S. AMERICA: Brazil and from AUSTRALIA.

EUROPE: Austria (Kalb et al. 1995: 215), British Isles (Hawksworth 1980a: 176, as *Spilomela ascaridiella*; Holien and Triebel 1996: 312), Denmark (Hawksworth 1980a: 176, as *S. ascaridiella*), France (Diederich and Roux 1991: 22), France: Corsica (Hafellner 1994a: 230), Ireland (Hawksworth 1980a: 176, as *S. ascaridiella*; Holien and Triebel 1996: 312), Italy: Sardinia (Nimis and Poelt

1987: 184, as *Pleospilis* sp.), Macedonia (Kalb et al. 1995: 215), Norway (Hafellner 1993: 756, as *Pleospilis ascaridiella*; Santesson 1993: 208, Holien and Tønsberg 1994: 74), Spain (Holien and Triebel 1996: 312; Giralt 1996: 371, as *P. ascaridiella*), Sweden (Santesson 1993: 208, as *P. ascaridiella*; Holien and Triebel 1996: 312); N. AFRICA: Canary Islands (Hafellner 1996a: 7, Etayo 1996a: 107, Hafellner 1995c: 90); N. AMERICA: (Esslinger 1998), Canada: British Columbia (Alstrup and Cole 1998: 227); S. AMERICA: Brazil (Kalb et al. 1995: 215, Holien and Triebel 1996: 312) and AUSTRALASIA: Australia: New South Wales (Kalb et al. 1995: 215).

Specimen examined: CZECH REPUBLIC: Western Moravia, Distr. Jihlava, NNR Velký Špičák, on a slope of Špičák hill, in a pine forest, on the base of *Picea abies*, on *Parmeliopsis ambigua*, 660 m, MTB 6659; 16.X.1996, coll. J. H. (PRM 892524, together with *Lichenoconium erodens*).

Stigmidium TREVIS.

Conspect. Verr.: 17 (1860)

The genus *Stigmidium* belongs to the family *Xanthopyreniaceae* of Pyrenulales. Except for the lichenicolous, lichenized fungus *Stigmidium marinum* (DEAKIN) SWINSCOW, the *Stigmidium* genus comprises lichenicolous, nonlichenized fungi only. Calatayud and Triebel (1999) currently accepted 25 species within *Stigmidium*. The *Stigmidium* taxonomy is difficult, unsufficiently clarified and there are many taxa which are in need of a revision. A detailed description and comparison with related *Sphaerellothecium* is treated by Roux and Triebel (1994). Main features and taxonomic problems of the genus are also discussed by Calatayud and Triebel (1999). *Stigmidium bellemerei* CL. ROUX et NAV.-ROS. (Roux et al. (1998), *S. calopadiae* MATZER, *S. epiphyllum* MATZER, *S. porinae* MATZER, *S. schizosporum* MATZER, *S. trichotheliorum* MATZER, *S. vezdae* MATZER (Matzer 1996), *S. caloplacae* ALSTRUP et OLECH (Alstrup and Olech 1996), *S. clauzadei* CL. ROUX et NAV.-ROS. (Roux and Navarro-Rosinés 1994), *S. grex* ALSTRUP et OLECH (Alstrup and Olech 1996), *S. neofusceliae* CALATAYUD et TRIEBEL (Calatayud and Triebel 1999), *S. lecidellae* TRIEBEL, CL. ROUX et LE COEOUR (Roux et al. 1995) and *S. xanthoparmeliarum* HAFELLNER (Hafellner 1994a) are some of the more recently described *Stigmidium* species.

In comparison with *Sphaerellothecium*, the species of *Stigmidium* do not form a net of hyphae on the surface of their hosts, the hyphae growing through the host tissue are usually hyaline or pale yellowish-brown and always smooth, rudimentar pseudoparaphyses usually are present, paraphysoids absent and the spores are usually hyaline till maturity. For other notes see also *Sphaerellothecium* (p. 120).

Roux et al. (1995: 668-669) presented a table with comparison of the main distinguishing characters of those *Stigmidium* and *Sphaerellothecium* species, that are growing in apothecia of various lichens.

Stigmidium congestum (KÖRB.) TRIEBEL

Mycotaxon 42: 290 (1991)

Bas.: *Pharcidia congesta* KÖRB., Parerga Lich.: 470 (1865)

Ref. CR: As *Pharcidia congesta*: Novák (1888: 56, 1893: 57).

Anders (1922: 301) also reported *Pharcidia congesta* from the Czech Republic, however, his record is listed on *Lecanora albescens* (as *Lecanora galactina*). As *Stigmidium congestum* is restricted to the hosts of epiphytic *Lecanora chlarotera*-group only, then the record of Anders refers to a different fungus.

Sel. lit.: Roux and Triebel (1994: 483-487, fig. 20, 21, 22).

Host lichen in CR: *Lecanora chlarotera.*

Other known hosts: *Lecanora allophana, L. chlarotera* var. *rugosella, L. intumescens, L. pulicaris* subsp. *rhododendri.*

Distribution: EUROPE: Austria (Hafellner et al. 1992: 119; Obermayer 1993: 144, as *Stigmidium schaereri*; Grube 1993: 481, Türk and Poelt 1993: 123, Hafellner 1994b: 24, Hafellner and Mauer 1994: 130, Wittmann and Türk 1994: 201, Roux and Triebel 1994: 486, Hafellner and Türk 1995: 629, Santesson 1998: 16), British Isles (Hitch 1995: 41), France (Coste 1994: 212, Roux and Triebel 1994: 486), Germany, Italy (Roux and Triebel 1994: 486-487), Poland (Fałtynowicz 1993: 35, as *Pharcidia congesta*), Romania (Moruzi et al. 1967: 42, as *Pharcidia congesta;* Zamfir et al. 1998: 196), Slovak Republic (Vězda 1963: 153, as *S. schaereri*), Slovenia (Grube et al. 1995: 194, Mayrhofer et al. 1996: 125, Grube et al. 1998: 187), Spain (Alvarez and Carballal 1992: 367, Roux and Triebel 1994: 486, Etayo and Breuss 1996: 227), Sweden (Santesson 1993: 213, Thor 1993: 115, Roux and Triebel 1994: 486), Switzerland (Roux and Triebel 1994: 486), Ukraine (Kondratyuk and Khodosovtsev 1997: 590, Kondratyuk et al. 1998b: 145, Kondratyuk 1999: 38, all as *S. schaereri*); ASIA: Turkey (Roux and Triebel 1994: 487) and N. AFRICA: Spain: Canary Islands (Hafellner 1995c: 93), Morocco (Hafellner 1996a: 8). See also Hafellner (1996a: 8) where under the name *Stigmidium schaereri* auct. are provided many references.

Stigmidium congestum formerly reported from the U.S.A. (Arizona) by Triebel et al. (1991: 290) was later revised as *Sphaerellothecium propinquellum* (NYL.) CL. ROUX et TRIEBEL (Roux and Triebel 1994: 533).

Specimen (not seen): CZECH REPUBLIC: Northern Bohemia, Distr. Česká Lípa, near the town, ("beim Bahndurchlass der B. N.-B. gegenüber Schleifmühle nächst Leipa"), on *Lecanora albescens*, (as *Lecanora galactina*), MTB 5353; w. date, coll. J. Anders (PRM-not found).

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, 2 km SW of the village of Horní Vltavice, near the Teplá Vltava River, on the bark of *Populus tremula*, on *Lecanora chlarotera* (ap.), 880 m, MTB 7048; 11.V.1996, coll. J. H. and P. K. (PRM 889691).

Eastern Bohemia, Distr. Havlíčkův Brod, in the town, on *Leanora chlarotera* (ap.), MTB 6260; coll. J. Novák (PRM 835177, 835175). Northern Moravia, Moravskoslezské Beskydy Mts., Distr. Frýdek-Místek, in the village of Horní Lomná, on *Lecanora chlarotera* (ap.), 605 m, MTB 6477; 28.X.1995, coll. J. H. (PRM 760479).

Stigmidium eucline (NYL.) VĚZDA

Čes. Mykol. 24: 228 (1970)

Bas.: *Mycoporum eucline* NYL., Flora 57: 317 (1874)

Ref. CR: Vězda (1970: 228).

Sel. lit.: Vězda (1970: 228), Santesson (1993: 213).

Host lichen in CR: *Ochrolechia lactea.*

Other known hosts: *Pertusaria pertusa, Pertusaria* sp.

Notes: Santesson (1993: 213) accepted *Stigmidium eucline* as a synonym of *Stigmidium aggregatum* (MUDD) D. HAWKSW. However, *S. aggregatum* is a different species distinguished by slightly narrower spores of 12.5-18 x 2.5-5 µm (Keissler 1930: 372) which grows on a different host, i. e. *Aspicilia calcarea* (Matzer and Hafellner 1990: 102). The spores in *S. eucline* are 14-16 (-18) x 4.5-6 µm diam.

Distribution: According to our knowledge, the species is distributed just in EUROPE, where it was reported only from Austria (Obermayer 1993: 144, Türk and Poelt 1993: 123, Hafellner and Mauer 1994: 130, Wittmann and Türk 1994: 202, Hafellner and Türk 1995: 629, as "*Stigmidium*" *eucline*), Norway (Santesson 1993: 213), Slovak Republic (Vězda 1970: 228), Slovenia (Grube et al. 1998: 185) and Sweden (Santesson 1993: 213).

Since the species is rather common in the Czech Republic and Austria, it should be found in other countries of Central Europe, too.

Specimens examined (all on *Ochrolechia lactea*): CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on outcrop of rock, on rhyolite, 370 m, MTB 5949; 3.X.1996, coll. J. H. and P. K. (PRM 890791, 890792).

Western Moravia, Distr. Třebíč, near Náměšť nad Oslavou, on a slope above the Oslava River, near the Lamberk ruin, on granulite rocks, ca. 350 m, MTB 6863; 7.X.1998, coll. J. K. (PRM 758290). - Distr. Třebíč, near the confluence of the rivers Chvojnice and Oslava, below the Ketkovický hrad castle, on granulite rocks, 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 758291).

Northern Moravia, Distr. Bruntál, Rýmařov, Mt. Rabštejn, 800 m, MTB 6068; 15.X.1960, coll. A. Vězda (hb. Vězda). - Jeseníky Mts., Distr. Jeseník, Mt. Sokol, near the village of Vidly, 1100 m, MTB 5969; 15.X.1961, coll. A. Vězda (hb. Vězda).

Southern Moravia, Distr. Brno, Ivančice, near the village of Biskoupky, in the valley of the Jihlavka River, on granulite rocks, ca. 300 m, MTB 6963; IV.1962, coll. A. Vězda (hb. Vězda). - The city of Brno, on a slope of Babí Lom hill, 400 m, MTB 6665; 28.X.1948, coll. A. Vězda (hb. Vězda).

Additional specimen examined: SLOVAK REPUBLIC: Northern Slovakia, Vysoké Tatry Mts., Mt. Hlúpy, on *Ochrolechia lactea*, 1950 m, 20.VI.1964, coll. A. Vězda (BRA 58b, as *Mycoporum eucline*).

Stigmidium fuscatae (ARNOLD) R. SANT.
Thunbergia 6: 17 (1988)

Syn.: *Pharcidia fuscatae* (ARNOLD) VOUAUX, Bull. Soc. mycol. France 28: 237 (1912)

Ref. CR: None.

Host lichens in CR: *Acarospora fuscata, A. moraviae.*

Other known hosts: Probably restricted to the above mentioned species.

However, the report of *Pharcidia dispersa* on *Acarospora macrospora* (as *Acarospora incusa* - Maire and Werner 1938: 29) should be prove if does not belong to this species.

Ecology: *Stigmidium fuscatae* forms very small ascomata on areoles of its hosts. When abundant, its host becomes conspicuously darker. Despite the heavy infection, the areoles do not appear to be damaged, only apothecia are restricted in their number. A mixed infection was observed only together with *Buellia badia*. The ascomata of *Stigmidium fuscatae* were seen to grow side by side with apothecia of *Buellia* on the same thallus of *Acarospora*, until the thallus of *Buellia* started to develop on the host thallus. Ascomata of *Stigmidium* have never been present on thalli of *Buellia badia* parasiting on *Acarospora*.

Stigmidium fuscatae occurs on exposed siliceous rocks. It has never been observed to grow on *Acarospora nitrophila*, a common species on xerothermic rocks in central Bohemia, although the thalli of both, the affected *Acarospora fuscata* and healthy *Acarospora nitrophila* often grew close to each other.

Distribution: Considering the number of references found, the species is overlooked. In the Czech Republic, the species is common, at least in the preferably studied area of central Bohemia. It is distributed mainly in lowlands, but several collections were also made in mountains.

EUROPE: Austria (Hafellner et al. 1992: 119, Berger and Türk 1993a: 191, Obermayer 1993: 144, Türk and Poelt 1993: 123, Hafellner and Mauer 1994: 131, Santesson 1994a: 17), Denmark (Alstrup 1993a: 63), France (Vouaux 1912: 238, Rondon 1970: 742, as *Pharcidia fuscatae*), Germany (Wirth 1994: 24), Italy (Vouaux 1912: 238), Spain (Etayo and Breuss 1996: 223), Sweden (Santesson 1986: 8, as *Stigmidium dispersum*; Santesson 1988: 17, Eriksson 1992: 105, 1993: 213, 1994a: 17, 1994b: 17) and N. AMERICA: (Esslinger and Egan 1995: 532), Mexico, U.S.A.: Arizona, Minnesota (Triebel et al. 1991: 288).

Specimens examined (if not mentioned otherwise all on the thallus of *A. fuscata*): CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, below Mt. Popelní hora, on scree near a small chapel, 900 m, MTB 6847; 1.VI.1993, coll. J. H. (PRM 889692).

Northern Bohemia, České středohoří Mts., Distr. Litoměřice, on the N slope of the Bobří údolí valley, on scree, ca. 500 m, MTB 5352; 26.IX.1995, coll. P. Scholz, J. H. and Z. Palice (hb. Palice).

Central Bohemia, Distr. Rakovník, Bukov, on a slope of Liščí skály hill, 420 m, MTB 5847; 15.XII.1996, coll. J. H. and P. K. (PRM 890802). - Ibid.: 22.II.1997, coll. J. H. and P. K. (PRM 890797). - Distr. Rakovník, Bedlno, in a quarry, on a granite rock, 485 m, MTB 5847; 4.III.1997, coll. J. H. (PRM 890799). - Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, 435 m, MTB 5947; 1.IV.1999, coll. P. K. and J. K. (PRM 758553, also present: *Muellerella pygmaea* var. *ventosicola* on *Rhizocarpon geographicum*). - Ibid.: 9.II.1997 (PRM 891383). - Distr. Rakovník, BR Křivoklátsko, between Skryje and Šlovice, above the Berounka River, on a spilite rock, 290 m, MTB 6048; 24.VII.1998, coll. J. K. and P. K. (PRM 758293). - Distr. Rakovník, BR Křivoklátsko, at the top of the Čertova skála rock, on spilite, 350 m, MTB 6048; 14.VII.1997, coll. J. K. and P. K. (PRM 892173). - Ibid.: 28.IX.1996 (PRM 892180, together with *Buellia badia*). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, Týřovické skály rocks, on shale, 320 m, MTB 6048; 23.V.1998, coll. J. K. and P. K. (PRM 892535). - Distr. Rakovník, BR Křivoklátsko, NNR Velká Pleš, on the W slope of Velká Pleš hill, on rocks, on rhyolite, 440 m, MTB 6048; 3.X.1996, coll. J. H. (PRM 892174). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka River, on rhyolite, 250 m, MTB 5949; 29.VII.1997, coll. P. K. and J. K. (PRM 891172, also present: *Abrothallus caerulescens* on *Xanthoparmelia conspersa*). - Distr. Rakovník, BR Křivoklátsko, between Roztoky and Karlova Ves, in the valley of the Klucná brook, on a steep slope, on rhyolite, 370 m, MTB 5949; 3.X.1996, coll. J. H. (PRM 890798). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, in a mixed forest on W exposed slope, on rocks, on rhyolite, 280 m, MTB 5949; 13. VII.1998, coll. J. K. and P. K. (PRM 758557). - Distr. Rakovník, BR Křivoklátsko, Skřivaň, on the N slope of Valachov hill, 350 m, MTB 5948; 27.VII.1997, coll. J. K. (PRM 891211).

Southern Bohemia, Distr. Prachatice, Stachy, near Kubova Huť, on the S slope of Mt. Obrovec, on shale iron rich boulders, on *Acarospora moraviae*, 950 m, MTB 7048; 29.V.1989, coll. J. H. and A. Vězda (PRM 870478 - Vězda: Lich. sel. exs. 2344, specimen of *Acarospora moraviae*).

Eastern Bohemia, Distr. Chrudim, near Škrovád, MTB 6060; 1910, coll. J. Kuťák (hb. Vězda, as *Stigmidium schaereri*). - Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, in the Obří důl valley, on a granite boulder by a track, 810 m, MTB 5260; 31.X.1995, coll. J. H. (PRM 890800).

Western Moravia, Distr. Jihlava, Rácov, on a gneissaceous boulder, ca. 630 m, MTB 6758; 15.X.1996, coll. J. H. (PRM 890801).

Northern Moravia, Jeseníky Mts., Distr. Jeseník, in the Malá Kotlina valley, on a slope of Mt. Jelení hřbet, 1000 m, MTB 5969; 12.VII.1989, coll. J. H. (PRM 758528). - Jeseníky Mts., Distr. Jeseník, in the valley Velká Kotlina, on a slope of Mt. Kamzičník, 1250 m, MTB 5969; 23.IX.1994, coll. P. Scholz and J. H., det. P. Scholz (PRM 889685).

Stigmidium mycobilimbiae CL. ROUX, TRIEBEL et ETAYO

Bull. Soc. linn. Provence 45: 499 (1994)

Ref. CR: Vězda (1963: 153, as "*Pharcidia*" *dispersa* on *Mycobilimbia sabuletorum* as *Bacidia sabuletorum*).

Sel. lit.: Roux and Triebel (1994: 499-500, fig. 38), Berger (1996: 76).

Host lichen in CR: *Mycobilimbia sabuletorum.*

Known hosts: So far only *Mycobilimbia accedens, M. lobulata* and *M. sabuletorum.*

Ecology: *Stigmidium mycobilimbiae* is probably an overlooked species, since its host is a very common lichen and the fungus is an inconspicuous parasymbiont that does not cause any macroscopically visible damage. It forms on its hosts small immersed ascomata.

In the Czech Republic, the species was collected in shaded and humid sites.

Distribution: So far the species is known from Europe only and according to Calatayud and Triebel (1999: 440), it prefers arctic and alpine regions. However, it was found in the Czech Republic in lowland as well.

EUROPE: Austria (Roux and Triebel 1994: 499-500, Hafellner 1996b: 79, Berger 1996: 76), Italy, Spain (Roux and Triebel 1994: 499-500).

Specimen (not seen): CZECH REPUBLIC: Northern Moravia, Jeseníky Mts., Distr. Jeseník, near the NNR Rejvíz peat bog, below the Koberštejn ruin, on *Mycobilimbia sabuletorum*, ca. 750 m, MTB 5769; VII.1958, coll. A. Vězda (hb. Vězda, as "*Pharcidia*" *dispersa*).

Specimens examined: CZECH REPUBLIC: Central Bohemia, the city of Praha, the Prokopské údolí valley, in the Dalejský háj forest, on a calcareous boulder, on *Mycobilimbia sabuletorum* (th.), 260 m, MTB 5952; 6.XI.1994, coll. J. H. (PRM 891381).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, near Horní Maršov, in the Vodovodní údolí valley, on *Mycobilimbia sabuletorum* (th.) growing on bryophytes, 610 m, MTB 5360; 27.IV.1997, coll. J. K. and P. K. (PRM 892172).

Stigmidium neofusceliae CALATAYUD et TRIEBEL

Nova Hedwigia 69: 441 (1999)

Ref. CR: None.

Sel. lit.: Calatayud and Triebel (1999: 443, tab. 1, figs 1-5).

Host lichens in CR: *Neofuscelia verruculifera.*

Other known hosts: *Neofuscelia pulla.*

Observation: Pycnidia in the Czech specimens are not developed. The host thalli in both specimens are nearly destroyed, especially in the last mentioned specimen the thalli of the host are very damaged and ascomata of the fungus are present in a very large quantity. In the last mentioned Moravian specimen the lobes of *Neofuscelia verruculifera* and *Melanelia fuliginosa* are mutually interwoven, but only the first lichen is infected. Although *Stigmidium neofusceliae* is described as having I+ violet reaction of the wall of ascomata, hymenial gel and outermost ascus wall, we could not confirm this observation in any of the below mentioned specimens.

Distribution: Previously, the species was known from Spain (Calatayud and Triebel 1999: 441, 444) only.

New for Central Europe!

Specimens examined: CZECH REPUBLIC: Western Moravia, Distr. Třebíč, near the confluence of the rivers Chvojnice and Oslava, the Ketkovický hrad castle, on granulite rocks, on *Neofuscelia verruculifera*, 360 m, MTB 6863; 5.X.1998, coll. J. K. (PRM 759355).

Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov reservoir, on the S exposed slope near the "Chvalatická zátoka" creek, on quartzite boulders, on *N. verruculifera*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 760465).

Stigmidium pumilum (LETTAU) MATZER et HAFELLNER

Bibl. Lichenol. 37: 115 (1990)

Ref. CR: None.

Sel. lit.: Matzer and Hafellner (1990: 115-120, figs. 20, 21).

Host lichen in CR: *Physcia wainioi.*

Other known hosts: *Physcia caesia, P. caesia* var. *rhetica, P. dubia, P. phaeops.*

Observation: *Stigmidium pumilum* is a very inconspicuous lichenicolous fungus. It is recognizable in the field as slightly darker-grey hot thalli among the paler, healthy ones. The coloration is given by a dense net of very thin brown hyphae on surface of the affected thallus. The almost completely immersed ascomata, of only 30-70 µm in diam., usually enclose only a few, very small 8-spored asci, of 24-30 x 10-14 µm, with 2-celled hyaline spores, of 8.5-10.5 x 4-5 µm.

Ecology: The species grows on exposed acidic, calcareous, dolomitic and serpentinic rocks, outcrops and boulders. It has been usually found in montane situations.

Distribution: *Stigmidium pumilum* is a very worldwide distributed species in both hemispheres. Despite of its wide distribution and wide distribution of its hosts, the species is known from rather few collections, probably due to its inconspicuous nature.

EUROPE: Austria (Matzer and Hafellner 1990: 119, Hafellner 1991: 101, Hafellner and Türk 1995: 630, Berger et al. 1998: 411, Santesson 1998: 16), British Isles (Hitch 1997a: 57), Estonia (Jüriado et al. 1999: 95), France (Matzer and Hafellner 1990: 119), Norway (Santesson 1993: 213), Sweden (Thor 1992: 27, Eriksson 1992: 105, Santesson 1993: 213), Switzerland (Matzer and Hafellner 1990: 119); N. AFRICA: Spain: Canary Islands (Matzer and Hafellner 1990: 119); S. AMERICA: Chile (Santesson 1994b: 9, Wedin 1994: 309) and AUSTRALASIA: New Zealand (Matzer and Hafellner 1990: 119).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, below the Krakovec castle, on spilite rocks, on *Physcia wainioi*, 435 m, MTB 5947; 14.IX.1996, coll. J. H. (PRM 891178). - Ibid.: 14.X.1996, (PRM 889747), 2.XI.1996 (PRM 889746). - Distr. Beroun, BR Křivoklátsko, Stará Ves near Hudlice, on diabasic rocks, on *P. wainioi*, 320 m, MTB 6049; 10.XI.1996, coll. J. H. and P. K. (PRM 889686).

Stigmidium xanthoparmeliarum HAFELLNER
Bull. Soc. linn. Provence 45: 231 (1994)

Ref. CR: Kocourková (1999: 184).

Sel. lit.: Calatayud and Triebel (1999: 443, tab. 1).

Host lichens in CR: *Xanthoparmelia conspersa, X. somloënsis.*
X. conspersa is reported here as a new host.

Other known hosts: *Xanthoparmelia protomatrae, X. tinctina.*

Distribution: Previously known only from France: Corsica and Italy (Hafellner 1994a: 230) and the Czech Republic. Recently reported also from Austria and Switzerland (Hafellner 1999b: 526, 527) and Spain (Calatayud and Triebel 1999: 443).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, NNR Týřov, Týřovické skály rocks, on shale, on *Xanthoparmelia conspersa* (th.), 320 m, MTB 6048; 10.IV.1998, coll. J. K. and P. K. (PRM 758532). - Distr. Rakovník, BR Křivoklátsko, NNR Týřov, below the Týřov castle above the Berounka River, on rhyolite rocks, on *X. conspersa*, 290 m, MTB 6048; 8.VIII.1999, coll. J. K. and P. K. (PRM 759350). - Distr. Rakovník, BR Křivoklátsko, near the village of Roztoky and the settlement of Višňová, on a rock near the road by the Berounka River, on rhyolite, on *X. conspersa* (ap. and th.), 250 m, MTB 5949; 24.V.1997, coll. J. K. and P. K. (PRM 892457). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, in a mixed forest on the W exposed slope, on rocks, on rhyolite, on *X. conspersa* (th.), 280 m, MTB 5949; 13. VII.1998, coll. J. K. and P. K. (PRM 892481, conf. J. Hafellner). - Distr. Beroun, BR Křivoklátsko, below the Točník castle, on porphyritic rocks, on *X. conspersa*, 370 m, MTB 6149; 6.VII.1998, coll. J. H. and P. K. (PRM 892651). - Ibid.: on *X. somloënsis* (PRM 758514, together with *Weddellomyces xanthoparmeliae* and *Lichenoconium usneae*). - Distr. Beroun, LPA Český Kras, near the village of Hostim, on diabasic rocks, on *X. somloënsis*, 260 m, MTB 6050; 25.IX.1998, coll. J. K. (PRM 892652).
Southern Bohemia, Distr. Tábor, in the town near the Lužnice River, on amfibolite, *X. somlöensis*, MTB 6553; 1925, coll. M. Servít, det. J.K. (PRM 892974, specimen of *Buellia badia*).

Taeniolella S. HUGHES
Can. J. Bot. 36: 816-818 (1958)

The genus, belonging to the dematious hyphomycetes, currently comprises twenty five species of saprophytic fungi. In addition, several lichenicolous species were recently recognized. Three species are found in the Czech Republic.

Taeniolella beschiana DIEDERICH
Bull. Soc. Nat. luxemb. 93: 156 (1992)

Ref. CR: None.

Sel. lit.: Diederich (1992: 156-159, figs1, 2).

Host lichen in CR: *Cladonia chlorophaea* s. l.

Other known hosts: *Cladonia coccifera, C. stricta, C. uncialis* and *C. zopfii.*

Observation: The species typically grows on phyllocladia, mainly on their margins on the basal part of podetia and on their old, nearly destroyed, sorediate parts. Conidiophores in the specimen from the second locality (PRM 892505) are longer, up to 70 µm, in comparison with the first below listed specimen and the type diagnosis (Diederich 1992: 156).

Distribution: The species has been hitherto only known from EUROPE: Austria (Berger and Türk 1993a: 192), Denmark (Alstrup 1993b: 103), Luxembourg (Diederich 1992: 156), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 159), Sweden (Santesson 1993: 215) and from ASIA: Russia: Taymyr Peninsula (Zhurbenko 1998: 158).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, on stony scree, on rhyolite, in a mixed forest, on *Cladonia chlorophaea* s. l., 280 m, MTB 5949; 21.II.1998, coll. P. K. and J. K. (PRM 892521). - Distr. Rakovník, BR Křivoklátsko, U Eremita nature reserve, on shale, on soil, on *Cladonia chlorophaea* s. l., 300 m, MTB 5949; 25.IV.1997, coll. J. K. and P. K. (PRM 892505, together with *Lichenoconium pyxidatae*).

Taeniolella cladinicola ALSTRUP
Graphis Scripta 5: 62 (1993)

Ref. CR: None.

Host lichen in CR: *Cladonia arbuscula; C. rangiferina*, as a new host.

Known hosts: The species has been hitherto known to grow on *Cladonia arbuscula* and *C. portentosa.*

Observations: Mycelium hyaline, growing intracellularly in the host's hyphae; colonies scattered, mostly occurring in lower parts of podetia, under strong infection spreading to large part of podetia; conidiphores semi-macronematous, arising in small groups, erect.
No change in the colour of the host thallus is observed when infection is poorly developed. Under strong infection affected parts become dark in colour (brown grey) as described in the original diagnosis (Alstrup 1993a: 62). The fungus is a parasymbiotic to pathogenic species.

Note: The roughened surface of the wall of conidiophores and some characters in the shape of conidiophores and conidia are similar to *Taeniolella beschiana.*

Distribution: The species is hitherto known from two Danish collections (Alstrup 1993a: 62, 1993b: 104) only, however, it seems to be overlooked.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Podbořánky, in a pine forest, by a forest path, on *Cladonia rangiferina*, 520 m, MTB 5946; 14.IX.1997, coll. J. K. (PRM 892520). - Distr. Rakovník, Přílepy, on a slope of Přílepská skála hill, on humus, on *C. arbuscula*, 400 m, MTB 5847; 22.VIII.1999, coll. J. K. (PRM 759363).

Taeniolella delicata M. S. CHRIST. et D. HAWKSW.
Bull. Brit. Mus., Nat. Hist., Bot. ser. 6: 253 (1979)

Ref. CR: None.

Host lichen in CR: *Amandinea punctata.*

Other known hosts: *Arthonia impolita, Candelariella vitellina, Icmadophila ericetorum, Lecanora albella, L. campestris, L.*cf. *chlarotera, L. crenulata, L. hagenii, Physconia distorta, Psilolechia lucida, Rhizocarpon obscuratum.*

Distribution: EUROPE: Austria (Hawksworth 1979: 255, Wittmann and Türk 1990: Türk and Poelt 1993: 124, Boom et al. 1996: 648), British Isles (Hawksworth 1979: 255), Denmark (Hawksworth 1979: 255, Vězda 1983: 8, Santesson 1986: 9, Alstrup et al. 1988: 26), France (Hawksworth 1979: 255), Germany (John 1990: 244), Sweden (Hawksworth 1979: 255), Ukraine (Kondratyuk and Kolomiets 1997: 43, Kondratyuk 1999: 38) and N. AMERICA: Greenland (Alstrup and Hawkoworth 1990: 70).

Specimen examined: CZECH REPUBLIC: Western Moravia, Distr. Žďár n. Sázavou, between Zahradiště and Krásněves, on the bark of *Acer platanoides*, on *Amandinea punctata*, 550 m, MTB 6561; 5.VII.1997, coll. J. K. (PRM 758601).

Thelocarpon NYL.
Ann. Sci. Nat. Bot., ser. 3, 20: 317 (1853)

The genus *Thelocarpon* comprises saprophytic or parasitic non-lichenized or lichenized fungi. Among the twenty two currently recognized taxa of the genus, *Thelocarpon cyaneum* ALSTRUP, *Thelocarpon epibolum* s. l. and *Thelocarpon lichenicola* (FUCKEL) POELT et HAFELLNER may grow on lichens.

Thelocarpon epibolum is often identified to the varieties, i. e. *Thelocarpon epibolum* NYL. var. *epibolum* and *Thelocarpon epibolum* var. *epithallinum* (LEIGHT. ex NYL.) G. SALISB. *Thelocarpon epibolum* NYL. was described on *Solorina crocea* as a short-spored taxon with spores of 4-6 x 2-2.5 µm in diam., *Thelocarpon epithallinum* LEIGHT. ex NYL. was described on *Baeomyces rufus* with the spores of 6-7 x 2-2.5 µm in diam. When published collections were identified to the variety level, the name *T. epibolum* var. *epibolum* has been usually used for the fungus growing on various substrata (rotten wood, soil, *Coccomyxa, Baeomyces, Peltigera, Normandina, Solorina*) and characterized by conical ascocarps covered by yellow-pruinose layer of crystals, by an ascocarp wall without algal cells, asci flask-shaped with wall of I-, hymenium of paraphyses simple and thin, hymenial and ascus jelly I+ yellow-red and the spores of 2-6 x 1.5-2(-2.5) µm; the name *T. epibolum* var. *epithallinum* has been usually used for that fungus, which has been distinguished from the former one by longer spores, of (6-)8-10(-12) x 2.5-3 µm and by lichenicolous occurrence on *Baeomyces, Peltigera* spp. and *Solorina octospora* only.

During his study of the British members of *Thelocarpon* NYL. Salisbury (1953) studied the type specimen of *Thelocarpon epithallinum* LEIGHT. ex NYL. on *Baeomyces rufus* and consequently proposed to transfer it (as the long-spored taxon) from the level of species to a variety, *Thelocarpon epibolum* var. *epithallinum*. The size of spores on this host is too small in comparison with the size of spores 6-9(-12) x 2-3 µm, usually observed on the hosts *Peltigera* spp. and *Solorina octospora*. The long-spored taxon had been treated by Magnusson (1936: 300) on *Peltigera aphthosa* and he named it *Thelocarpon epibolum* f. *longisporum,* however with the following note: "Villeicht gehört die von Leighton bei Nyl. (Flora 1866, 420) beschriebene *Th. epithallinum*, die von Zahlbr., Catal. 5 (1928) 3 als Synonym hierher geführt wird, zu f. *longisporum*...". Moreover, this name is not validly published, as type diagnosis is only in German (Art. 36). Salisbury has later abandoned his own conception and placed the var. *epithallinum* and Magnusson's f. *longisporum* in synonymy of *T. epibolum* (Salisbury 1966: 180).

Ahti (1973: 66-67) during his work on North American *Peltigera* species noted often occurrence of *Thelocarpon* on these hosts with differences in length of spores in *Thelocarpon epibolum* on various hosts (Ahti 1973:66-67) and stated that most collections with long spores occurred on *Peltigera aphthosa* and *P. leucophlebia.* He studied the holotype of *T. epibolum* NYL. on *Solorina crocea*, however, he did not see the type specimen of *T. epithallinum* LEIGHT. on *Baeomyces rufus* and saw only the single specimen with *Thelocarpon* on this latter host. As he was not sure that the long-spored taxon on *Peltigera aphthosa* and *P. leucophlebia* is a "good" species (he found the only difference in the size of spores and host spectrum) and as he found the name of f. *longisporum* invalidly published, he accepted the name *Thelocarpon epibolum* var. *epithallinum* for that taxon, although he supposed this name was probably doubtful for it.

Although we have never studied the type specimen of *T. epibolum* nor *T. epithallinum* and only saw three specimens listed in the protologue to the invalid name of *Thelocarpon epibolum* f. *longisporum*, we can decide that shorter spores, of 2-4(-5) x 1.5-2 µm in diam. are always present in the collections on crusts of *Coccomyxa* sp., on thalli of *Solorina crocea, Peltigera* sp. (with blue-green photobiont), *Verrucaria* sp., squamules of *Omphalina hudsoniana, Normandina pulchella,* on rotten wood and stumps of *Picea abies, Fagus sylvatica, Populus nigra, Sambucus racemosa,* on a granite stone, on the *Fomes fomentarius* basidiocarp upper side and on soil (Kocourková-Horáková 1998b: 282-284), while the spores in specimens on *Baeomyces* or on *Baeomyces* affected by *Arthrorhaphis grisea* are constantly 6-7 x 2-2.5 µm in diam. The largest spores occur in specimens on *Peltigera aphtosa,* with spores of 6-9(-12) x 2-3 µm.

As the *Thelocarpon* on *Baeomyces* or on *Baeomyces* affected by *Arthrorhaphis grisea* is distinguished except for the size of spores also by the paraphyses of 1-1.5 µm, twice thicker than those in specimens on the other above mentioned substrata, the taxon should be accepted as a separate species, for which the available name is *Thelocarpon epithallinum* LEIGHT. ex NYL.

However, there is no available name for the fungus "*Thelocarpon epibolum* f. *longisporum* H. MAGN." at this moment and the taxon should be newly described. According to the author's observations, the fungus is distinguished also by the form of ascocarps which are half-sphaerical in comparison with the conical ones on *Solorina crocea* and by their colour, which is never as bright yellow-pruinose as in the ascocarps of *Thelocarpon epibolum* on *Solorina crocea* and on other substrata, for example on squamules of *Omphalina hudso-*

niana, Normandina or *Coccomyxa*. This long-spored taxon is treated below under the name *Thelocarpon* sp.

All the short-spored specimens examined are listed below under the name *Thelocarpon epibolum* NYL., however, the species may be still heterogeneous. This should be proved in the future.

Thelocarpon epibolum NYL.

Not. Sällsk. Fauna Fl. Fennica Förhandl. 8: 188 (1866)

Ref. CR: Horáková (1998: 152), Kocourková-Horáková (1998b: 282-284).

Considering the narrowest concept, *Thelocarpon epibolum* s. str. (growing on *Solorina crocea* only) has not been found in the Czech Republic.

Sel. lit.: Magnusson (1936: 299-300), Ahti (1973: 67), Salisbury (1953: 70, 1966: 180), Poelt and Hafellner (1975, figs 4a, b, c, d2), Purvis et al. (1992: 596), Ihlen (1998: 54-55), Kocourková-Horáková (1998b: 280-284, figs 1, 4-9, 23).

Host lichens in CR: *Omphalina hudsoniana, Peltigera* sp., *Verrucaria* sp.

The fungus has been frequently found also on *Coccomyxa*-covers and on other substrata (see above, under *Thelocarpon* NYL. and Kocourková-Horáková (1998b: 282-284).

Other known hosts: *Normandina pulchella, Omphalina umbellifera, Peltigera didactyla, P. lepidophora, P. rufescens, Peltigera* sp., *Solorina crocea, Verrucaria* sp., alga *Coccomyxa* sp. and the liverwort *Aneura* sp.

Arthrorhaphis grisea, B. rufus and probably also *A. citrinella* and *Baeomyces carneus* are hosts of *T. epithallinum*. The finding on *Icmadophila ericetorum* (Thor 1992: 27-28) may also belong to *T. epithallinum*.

Distribution (of *T. epibolum* s. str. on *Solorina crocea*): EUROPE: Austria (Hafellner and Türk 1995: 631), Russia: Karelia (Nylander 1866a: 188), Sweden (Thor 1992: 27-28) and N. AMERICA: Canada: Newfounland (Ahti 1973: 66-67), Greenland (Alstrup and Hawksworth 1990: 72).

Reports of *T. epibolum* according to Salisbury (1953: 70 and 1966: 180): EUROPE: Austria, former Czechoslovakia (Slovakia), Denmark (Faeroe Islands), Great Britain, Finland, Italy, Romania, Sweden, former USSR (Caucasia, Ukraine), former Yugoslavia and N. AMERICA: Greenland.

Other reports: EUROPE: Austria (Obermayer 1993: 139, Boom et al. 1996: 648), Denmark (Alstrup and Laesøe 1987: 56), Denmark: Faeroe Islands (Alstrup et al. 1994: 107), Germany (Wirth 1994: 24, 1995: 900), Italy (Nimis 1993: 691), Luxembourg (Diederich et al. 1988: 33), Norway (Holien and Tønsberg 1994: 74, Ihlen 1998: 55), Norway: Spitsbergen (Alstrup and Olech 1993: 40), Poland (Fałtynowicz 1993: 36), Slovak Republic (Pišút 1970: 39, Alstrup 1992: 185, Pišút et al. 1996: 23, Kocourková-Horáková 1998b: 284), Sweden (Karström and Thor 1991: 92), Ukraine (Kondratyuk 1999: 38); N. AFRICA: (Nimis 1993: 691) and N. AMERICA: (Esslinger and Egan 1995: 533), Greenland (Alstrup and Hawksworth 1990: 72). For some additional reports see Hafellner and Obermayer (1995: 188).

Specimens examined (only lichenicolous findings): CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Kvilda, 1 km SE of the village of Kvilda, the Vltava River right bank, on mosses on rocks, on *Sphagnum magellanicum*, on squamules of *Omphalina hudsoniana*, 1000 m, MTB 6947; 13.VI.1997, coll. Š. Bayerová, det. J. K. (hb. Bayerová).

Eastern Bohemia, Distr. Pardubice, Chvaletice, sedimentary basin near a power station ca. 1 km E of the village, on an immersed pebble, on a thallus of *Verrucaria* sp., 220 m, MTB 5958; 14.II.1997, coll. Z. Palice (hb. Palice).

Southern Moravia, Distr. Znojmo, Moravský Krumlov, Tábor hill, above the left bank of the Rokytná River, xerothermic slope, on dying thalli of *Peltigera* sp., 350 m, MTB 6963; 19.V.1996, coll. Z. Palice (hb. Palice).

Additional specimens examined (only lichenicolous findings): AUSTRIA: Tirol, Mittelberg in Pitztal, on *Peltigera* sp. (with blue-green photobiont), VIII.1875, coll. F. Arnold (M 10579). - Tirol, Finsterthaler Seen. Kühtai, on *Solorina crocea*, VIII.1874, coll. F. Arnold (M 10584, 10585). - Tirol, Längenthal near Kühtai, on *Normandina pulchella*, 1884, coll. H. Lojka (M 10587). - Tirol, Kraxentrag near Brenner, on *Solorina crocea*, VIII.1872, coll. F. Arnold (M 10588). - Tirol, above Gurl in Ötztal, on *Solorina crocea*, 14.VIII.1873, coll. F. Arnold (M 10589, Arnold: Lich. exs. 568). - Tirol, Gurl in Ötztal, on *Solorina crocea*, 14.VIII.1873, coll. F. Arnold (M 10590, Arnold: Lich. exs. 568). - SLOVAK REPUBLIC: Northern Slovakia, Vysoké Tatry Mts., Temnosmrečinová dolina valley, near the Vyšné lake Temnosmrečinovské pleso, on *Omphalina hudsoniana*, 1720 m, 22.IX.1993, coll. J. H. and V. Alstrup (PRM 889695). - Liptovské hole Mts., Mt. Dzurova, on *Omphalina hudsoniana*, 1883, coll. H. Lojka (M 10582).

Thelocarpon epithallinum LEIGHT. ex NYL.

Flora 49: 420 (1866)

Syn.: *Thelocarpon epibolum* var. *epithallinum* (LEIGHT. ex NYL.) G. SALISB., Northw. Nat. 1: 70 (1953)

Ref. CR: As *Thelocarpon epibolum*: Horáková (1998: 152), Kocourková-Horáková (1998a: 229, 1998b: 282-284).

Sel. lit.: Salisbury [1953: 70-71, as *Thelocarpon epibolum* var. *epithallinum* (LEIGHT. ex NYL.) G. SALISB.], as *T. epibolum*: Salisbury (1966: 180), Ihlen (1998: 54-55), Kocourková-Horáková (1998b: 280-284).

Host lichens in CR: *Arthrorhaphis grisea, Baeomyces rufus*.

Other known hosts: *Arthrorhaphis citrinella, Baeomyces carneus*.

Distribution (reports with listed hosts *Baeomyces* or *Arthrorhaphis*): EUROPE: Austria (Hafellner and Obermayer 1995: 187), Great Britain (Nylander 1866b: 420), Norway (Ihlen 1998: 55) and N. AMERICA: (Ahti 1973: 66).

Other reports (as *T. epibolum* var. *epithallinum* without indication of any substratum): EUROPE: Austria (Hofmann et al. 1993: 873, Hofmann et al. 1998: 163).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Šumava Mts., Distr. Klatovy, Železná Ruda, NNR Černé a Čertovo jezero, a glacier cirque of the Černé jezero lake - the central part, moist siliceous pebbles on the ground, on thallus of *Baeomyces rufus* affected by *Arthrorhaphis grisea*, ca. 1200 m, MTB 6845; 11.X.1995, coll. Z. Palice (hb. Palice). - Šumava Mts., Distr. Klatovy, Modrava, a forest path leading through the peat bog Mlynářská slať, on thallus of *Baeomyces rufus* affected by *Arthrorhaphis grisea*, 1050 m, MTB 6946; 28.VI.1995, coll. Z. Palice (hb. Palice).

Southern Bohemia, Šumava Mts., Distr. Prachatice, Kvilda, in a peat bog between the Jezerní slať nature reserve and the Hamerský potok stream, on *Arthrorhaphis grisea* growing on *Baeomyces rufus*, 990 m, MTB 6947; 2.X.1990, coll. J. H. (PRM 887014). - Šumava Mts., Distr. Prachatice, near the source of the Vltava River, on mossy overhangs by a forest path, on thallus of *Baeomyces rufus* affected by *Arthrorhaphis grisea*, 1170 m, MTB 7047; 5.V.1993, coll. J. H. (PRM 887015).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, in the Obří důl valley, close to a small peat bog, on brookside, on mica-schist stone, on thallus of *Baeomyces rufus* affected by *Arthrorhaphis grisea*, ca. 950 m, MTB 5260; 21.V.1999, coll. J. K. and P. K. (PRM 760477, specimen of *Arthrorhaphis grisea*). - Orlické hory Mts., Distr. Rychnov nad Kněžnou, valley of the Divoká Orlice River, Podlesí, at a forest margin, on a ditch margin of a road, on soil, on *Baeomyces rufus*, 550 m, MTB 5765; 19.IV.1996, coll. Z. Palice (hb. Palice, together with *Arthrorhaphis grisea*).

Thelocarpon sp.

Syn.: *Thelocarpon epibolum* f. *longisporum* H. MAGN., Krypt.-Fl. Deutschl., 9(5/1): 300 (1936) (nom. inval.)
Thelocarpon epibolum var. *longisporum* THOR, Graphis Scripta 4: 28 (1992) (nom. nud.)

Ref. CR: None.

Although the fungus was collected by A. Vězda in the Czech Republic a longer time ago, its discovery had not been published yet.

Sel. lit.: Salisbury (1953, 1966), Kocourková-Horáková (1998b: 284-285).

Host lichen in CR: *Peltigera aphthosa.*

Other known hosts: *P. leucophlebia, Solorina crocea, S. octospora.* We suppose the findings on *Peltigera britannica* and *P. venosa,* treated by Cole and Alstrup (1998: 227) sub *T. epibolum*, may belong here.

Distribution: EUROPE: Austria (Poelt and Hafellner 1975: 73, as *T. epibolum* var. *epithallinum*; Hafellner and Türk 1995: 631 as *T. epithallinum*; Hofmann et al. 1995: 235, as *T. epibolum* var. *epithallinum*), Great Britain (Nylander 1866b: 420), Italy (Magnusson 1936: 300, as *T. epibolum* f. *longisporum*; Nimis 1993: 691), Norway (Kümmerling and Alstrup 1992: 121, as *T. epibolum*; Hafellner 1993: 763, Santesson 1993: 219), Norway: Spitsbergen (Alstrup and Olech 1993: 40), Slovak Republic (Alstrup 1996: 14, as *T. epibolum*), Spain (Martínez and Hafellner 1998: 297), Sweden (Magnusson 1936: 300, as *T. epibolum* f. *longisporum*; Thor 1992: 28, as *T. epibolum* var. *longisporum*; Santesson 1993: 219) and N. AMERICA: Canada: British Columbia, Newfounland (Ahti 1973: 66), Greenland (Alstrup and Hawksworth 1990: 72), U.S.A.: Michigan (Ahti 1973: 66).

Specimen examined: CZECH REPUBLIC: Northern Moravia, Jeseníky Mts., on the N slope of Mt. Jelení hřbet, on thallus of *Peltigera aphthosa*, 1200 m, MTB 5869; IX.1967, coll. A. Vězda (hb. Vězda).

Additional specimens examined: FINLAND: Tavasia australis: Padasjoki Arokoski, 1872, coll. E. A. Vainio (M 10560, as *Thelocarpon impressellum* NYL.). - SLOVAK REPUBLIC: Northern Slovakia, Liptovské hole Mts., in the saddle Smutné sedlo, on *Peltigera aphthosa*, 1800 m, 14.IX. 1966, coll. A. Vězda (hb. Vězda). - Vysoké Tatry Mts., valley Temnosmrečinovská dolina, near the lake Vyšné Temnosmrečinovské pleso, on thalli of *Peltigera aphthosa*, 1720 m, 22.IX.1993, coll. J. H. and V. Alstrup (PRM 889693). - SWEDEN: Avesta in Darlecarlien, on *Peltigera aphthosa*, 1885, coll. C. Indebotou (M 10596; M 10591, Zwackh: Lich. exs. 990a). - Avesta in Darlecarlien, on *Peltigera aphthosa*, 1885, coll. C. Indebotou (M 10592, Lojka: Lichenotheca Univ. n. 198). - Södermanland, Öya, on *Peltigera aphthosa*, w. date, coll. O. G. Blomberg (M 10595).

Thelocarpon lichenicola (FUCKEL) POELT et HAFELLNER

Phyton 17: 70 (1975)

Bas.: *Peziza lichenicola* FUCKEL, Fungi rhenani 1169. (nom. nud.)
Syn.: *Ahlesia lichenicola* FUCKEL, Symb. mycol. Jahrb. nassauisch. Ver. f. Naturkunde 23/24: 281 (1870)

Ref. CR: Horáková (1998: 153), Kocourková-Horáková (1998b: 293-298).

Sel. lit.: Salisbury (1974: 693-695, fig. 1, as *Ahlesia lichenicola*), Poelt and Hafellner (1975: 70, fig. 1), Ihlen (1998: 55-56), Kocourková-Horáková (1998b: 293-298, figs 3, 19-22, 26).

Host lichen in CR: *Baeomyces rufus.*

Other known hosts: *Caloplaca holocarpa, Lepraria* sp. (as *L. neglecta* auct., see notes by Rambold and Triebel 1992: 144 and Kümmerling et al. 1993: 148), *Omphalina hudsoniana, Peltigera* sp., *Solorina* sp. and algae.

Note: For more information on the ecology and distribution of this taxon in the Czech Republic see Kocourková-Horáková (1998b: 229).

Distribution: EUROPE: Austria (Salisbury 1974: 695, Türk and Poelt 1993: 126, Berger et al. 1998: 411), Germany (Salisbury 1974: 695), Finland (Vitikainen et al. 1997: 62), Italy (Salisbury 1974: 695, Nimis 1993: 691), Poland (Fałtynowicz 1993: 36, Salisbury 1974: 695), Norway (Santesson 1993: 220, Holien and Tønsberg 1994: 74, Ihlen 1998: 56), Slovak Republic (Lisická 1998: 36), Sweden (Salisbury 1974: 695, Santesson 1993: 220) and N. AMERICA: Greenland (Alstrup and Hawksworth 1990: 72), U.S.A.: New Hampshire (Salisbury 1974: 695).

Specimen examined (lichenicolous only): CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Kvilda, in a peat bog near the Jezerní slať nature reserve and the Hamerský potok stream, on gneiss pebbles, on poorly developed squamules of *Baeomyces rufus*, 1070 m, MTB 6947; 2.X.1990, coll. J. H. (PRM 887026).

Additional specimens examined (only lichenicolous specimens): GERMANY: Baden-Württemberg, Wolfsbrunnen ca. Heidelbergam; on *Baeomyces rufus*, rarely. Autum, w. coll., Fungi rhen. 1169 (M 10598, as *Peziza lichenicola* FUCKEL - Lectotypus of *Thelocarpon lichenicola*). - ITALY: Südtiroler Dolomiten/ Bozener Porphyrplateau: Rücken between Welschnofen and Eggen, W of Latemar, 1200-1400 m, on porphyritic rock, on *Baeomyces rufus*, 19.X.1975, coll. and det. J. Hafellner, Nr. 969. (M 10599).

Tremella PERS.

Neues Mag. Bot. 1: 111 (1794):
FR. Syst. mycol. 2 (1): 210 (1822)

The genus *Tremella* comprises about 80 species, among them also lichenicolous species, which were treated in detail by Diederich (1996) together with other heterobasidiomycetous lichenicolous fungi of the genera *Syzygospora* MARTIN, *Chionosphaera* COX, *Cystobasidium* (LAGERH.) NEUHOFF, and *Biatoropsis* RÄSÄNEN. Only one lichenicolous species is currenly known in the Czech Republic.

Tremella hypogymniae DIEDERICH et M. S. CHRIST.

Bibl. Lichenol. 61: 90 (1996)

Ref. CR: None.

Sel. lit.: Diederich (1996: 90-95, figs 50, 51).

Host lichen in CR: *Hypogymnia physodes.*

Known host: *Hypogymnia physodes* only.

Ecology: *Tremella hypogymniae* is a parasitic fungus inducing formation of pale to pinkish galls on the host thallus. In the Czech Republic it has been found so far in humid and cold habitats from uplands to mountains.

Distribution: According to Diederich (1996: 92), the species is widely distributed in EUROPE: Austria, Finland, France, Germany, Great Britain, Luxembourg, Norway, Poland, Romania, Russia: Karelia, Spain, Sweden, Switzerland; N. AFRICA: Spain: Canary Islands and N. AMERICA: Canada: Ontario. It likely takes the distribution range of *H. physodes*.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Příbram, Brdy Mts., in the valley of the Třítrubecký potok stream, NE of Chocholatá skála hill, on the bark of *Quercus petraea*, on *Hypogymnia physodes*, 560 m, MTB 6348; 21.IX.1997, coll. Š. Bayerová, det. J. K. (hb. Bayerová).

Southern Bohemia, Šumava Mts., Distr. Prachatice, 3 km S of the settlement of Černý Kříž, Mt. Srnčí vrch, in the Jelení vrch nature reserve, on a stump of *Picea abies*, on *Hypogymnia physodes*, ca. 850 m, MTB 7149; 15.X.1998, coll. J. K. (PRM 758300).

Northern Moravia, Moravskoslezské Beskydy Mts., Distr. Frýdek-Místek, in the village of Horní Lomná, on *Hypogymnia physodes* (th.), 605 m, MTB 6477; 28.X.1995, coll. J. H. (PRM 891390).

Additional specimen examined: AUSTRIA: Steiermark: Niedere Tauern, Sekauer Tauern, in Talschluss of Feistritzgrabens N of Knittelfeld, by road from Unteren Bodenhütte, ca. 1500 m, 47° 21′20″/ 14°47′15″; MTB 8654/2; in a *Pinus-Larix* forest, on the bark of *Larix*, on *Hypogymnia physodes*, 5.X.1997, coll. J. Hafellner and J. K. (PRM 891392).

Trimmatostroma CORDA
Icon. Fung. 1: 9 (1839)

The detailed description of the hyphomycetous genus and non-lichenicolous saprophytic species was provided by Ellis (1971: 41-42). Only one lichenicolous species is known so far.

Trimmatostroma lichenicola M. S. CHRIST. et D. HAWKSW.
Bull. Brit. Mus., Nat. Hist., Bot. ser. 6: 264 (1979)

Ref. CR: None.

Sel. lit.: Hawksworth (1979a: 264-266, Fig. 41, A-D).

Host lichens in CR: *Candelariella aurella, Lecanora dispersa* s.l.

Other known hosts: *Caloplaca holocarpa, Candelariella canadensis, C. vitellina, Lecanora fuscescens, L. polytropa, L. symmicta, Pleurosticta acetabulum, Protoblastenia* sp., *Psoroma hypnorum, Strangospora pinicola, Toninia cumulata.*

Observation: *Trimmatostroma lichenicola* is a parasitic fungus on apothecia of its hosts which become nearly black.

Distribution: EUROPE: Luxembourg (Boom et al. 1996: 90, Sérusiaux et al. 1999: 81), Norway (Alstrup and Hawksworth 1990: 73, Santesson 1993: 225), Russia: Franz Josef Land (Zhrubenko a Santesson 1996: 159), Sweden (Santesson 1993: 225, Nordin 1996: 156, Santesson 1998: 19), Spain (Alstrup and Hawksworth 1990: 73);); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 227, Zhurbenko and Santesson 1996: 159) and N. AMERICA: Greenland (Hawksworth 1979a: 266, Alstrup and Hawksworth 1990: 73).

The species is reported here as new for the Slovak Republic!

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Na Babě nature reserve, on top of a concrete post by a path, on *Lecanora dispersa* s. l., 290 m, MTB 5949; 1.V.1998, coll. J. K. and P. K. (PRM 892471).

Southern Bohemia, Distr. Pelhřimov, in the village of Hojanovice, on top of a concrete post by a road, on *Candelariella aurella*, 440 m, MTB 6357; 22.VIII.1998, coll. J. K. and P. K. (PRM 892629).

Additional specimen examined: SLOVAK REPUBLIC: Malé Karpaty Mts., near Sv. Jur near Bratislava, on a concrete wall, on *Candelariella vitellina*, 180 m, III.1972, coll. A. Lackovičová (BRA, as *Lecidea vitellinaria*).

Unguiculariopsis REHM
Ann. Mycol. 7: 401 (1909)

The genus belongs to the family *Leotiaceae*. It includes fungicolous and lichenicolous species. Three are obligate on lichens. It has been recently monographed by Zhuang (1988).

Unguiculariopsis thallophila (P. KARST.) W. Y. ZHUANG
Mycotaxon 32: 62 (1988)

Syn.: *Pyrenopeziza thallophila* (P. KARST.) SACC., Syll. Fung. 8: 370 (1889)

Ref. CR: None.

Sel. lit.: Hawksworth (1980a: 170-172, fig.3, as *Pyrenopeziza thallophila*), Alstrup and Hawksworth (1990: 73, as *Unguiculariopsis cribriformis* (NORMAN) ALSTRUP et D. HAWKSW.), Zhuang (1988: 62-65).

Host lichen in CR: *Lecanora carpinea.*

Other known hosts: *Lecanora albella, L. chlarotera.*

Ecology: *Unguiculariopsis thallophila* is a parasitic fungus occurring on the host thallus and at the margin of host apothecia.

Distribution: The species is widely distributed in Europe, a single record is known in the North Africa.
EUROPE: Austria (Türk and Poelt 1993: 131, Hafellner and Türk 1995: 631, Hafellner 1996b: 81, Santesson 1998: 19), British Isles (Hawksworth 1980a: 172, as *Pyrenopeziza thallophila;* Zhuang 1988: 63, Bricaud et al. 1993: 316), Finland (Hawksworth 1980a: 172, as *P. thallophila*; Zhuang 1988: 63, Bricaud et al. 1993: 316, Vitikainen et al. 1997: 64), France (Bricaud 1993: 316), France: Corsica (Hafellner 1994a: 232), Germany (Bricaud et al. 1993: 316), Norway (Hafellner 1993: 763, Santesson 1993: 225), Spain (Santesson 1960: 517, as "*Pyrenopeziza*" *thallophila*; Zhuang 1988: 63, Alvarez and

Carballal 1992: 367, Giralt 1996: 372), Spain: Mallorca (Etayo 1996b: 119), Sweden (Zhuang 1988: 63, Bricaud et al. 1993: 316, Santesson 1993: 225, 1994: 10) and N. AFRICA: Spain: Canary Islands (Hafellner 1995a: 433, 1995c: 98).

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Černý Kříž, at a margin of the Mrtvý luh peat bog, on twigs of *Populus tremula*, on *Lecanora carpinea*, 740 m, MTB 7149; 18.X.1998, coll. and det. M. Hecklau (hb. Wirth 32187, also present: *Lichenoconium xanthoriae* on *Xanthoria polycarpa*).

Vezdaea TSCHERM.-WOESS et POELT

Brown et al. (eds.)
Lichenology: Progr. Probl., Syst. Assoc. Spec. vol. 8: 91 (1976)

Among ten described species of the genus *Vezdaea* from the monotypic familiy *Vezdaeaceae*, six are occasionally found on lichens, mainly on *Peltigera* species. Three species have been found on lichens in the Czech Republic. *Vezdaea aestivalis* (OHLERT) TSCHERM.-WOESS et POELT, *V. retigera* POELT et DÖBBELER and *V. rheocarpa* POELT et DÖBBELER on *Peltigera* species are listed by Hawksworth and Miądlikowska (1997: 1133) and Goffinet et al. (1994: 200), *Vezdaea aestivalis* by Giralt et al. (1993: 722) and by Martínez and Hafellner (1998: 297) and *V. stipitata* POELT et DÖBBELER on *Petigera* species is reported by Giralt et al. (1993: 722). *Vezdaea acicularis* COPPINS, for the first time recorded to grow also on lichens, is published by Vězda (1996: 4) from the Czech Republic.

Vezdaea acicularis COPPINS

Lichenologist 19: 169 (1987)

Ref. CR: Vězda (1996: 4), Palice (1999b: 328).

Exs. CR: Vězda: Lich. rar. exs. 229.

Sel. lit.: Coppins (1987: 169), Giralt et al. (1993: 721).

Host lichen in CR: *Peltigera didactyla.*

Distribution: According to our knowledge, the species was reported only from EUROPE: Belgium (Purvis et al. 1992: 643), British Isles (Coppins 1987: 169, Diederich et al. 1991: 43-44, Hitch 1997a: 58, Purvis et al. 1992: 643), France (Diederich et al. 1991: 43-44, Purvis et al. 1992: 643) and Germany (Wirth 1994: 26).

Specimens examined (only lichenicolous collections): CZECH REPUBLIC: Eastern Bohemia, Distr. Pardubice, the Labe valley, Chvaletice, sedimentary basin near the power station ca.1 km E of the village, on moist contaminated soil, on the thalli of *Peltigera didactyla* and on plant debris, 220 m, MTB 5958; 5.XI.1995 and 21.III.1996, coll. Z. Palice (PRM 889633, Vězda: Lich. rar. exs. 229).

Vezdaea retigera POELT et DÖBBELER

Lichenologist 9: 170 (1977)
Pl. 8, figs 1, 2, 3

Ref. CR: Halda (1999: 26), Palice (1999b: 329).

Sel. lit.: Giralt et al. (1993: 721).

Host lichen in CR: *Peltigera didactyla.*

Other known hosts (only lichens): *Peltigera praetextata, P. rufescens.*

Ecology: *Vezdaea retigera* is a saprophytic ephemerous lichen which occurs occasionally also on almost dead terricolous lichens and bryophytes.

Distribution: EUROPE: Austria (Giralt et al. 1993: 722, Türk and Poelt 1993: 137), British Isles (Hawksworth et al. 1980: 104), Belgium (Goffinet et al. 1994: 200), Germany (Wirth 1994: 26), Luxembourg (Diederich et al. 1988: 33), Norway (Tønsberg 1990: 26, Santesson 1993: 236) and Sweden (Santesson 1993: 236).

The species is reported here as new for the Slovak Republic!

Specimen examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, Nové Údolí, a stony base of the bridge over the Studená Vltava River by Spálený luh nature reserve, on *Peltigera didactyla* thallus and on mosses, 800 m, MTB 7148; 9.IV.1993, coll. Z. Palice, det. A. Vězda (hb. Palice).

Additional specimen examined: SLOVAK REPUBLIC: Northern Slovakia, Západné Tatry Mts., Oravice, in the valley Bobrovecká dolina, on *P. praetextata*, 1000 m, MTB 6784; 29.V.1990, coll. J. H. (PRM 758584).

Vezdaea rheocarpa POELT et DÖBBELER

Lichenologist 9: 170 (1977)

Ref. CR: Palice (1999b: 330).

Sel. lit.: Giralt et al. (1993: 721-722).

Host lichen in CR: *Peltigera* sp.

Other host lichen: Known only from unidentified *Peltigera* species.

Distribution: Until now this ephemerous saprophytic lichen was reported from EUROPE from Austria (Türk and Poelt 1993: 137), Belgium (Goffinet et al. 1994: 200, Sérusiaux et al. 1999: 86), British Isles (Hawksworth et al. 1980: 104, Purvis et al. 1992: 644) and Luxembourg (Diederich et al. 1991: 44, lichenicolous on *Peltigera*).

Specimen examined: CZECH REPUBLIC: Western Bohemia, Distr. Klatovy, Šumava Mts., Prášily, Mt. Ždanidla - SSW slope, on an old *Fagus*, on *Peltigera* sp. and a spongy bark, 1180 m, MTB 6946; 11.VI.1997, coll. and det. Z. Palice (hb. Palice).

Vouauxiella PETR. et SYD.

Repert. spec. nov. Regni veg., Beih. 42: 482 (1927)

This coelomycetous genus comprises obligately lichenicolous fungi only. So far, four species are known. A detailed description of the genus and species was presented by Hawksworth (1981: 64-67).

Vouauxiella lichenicola (LINDS.) PETR. et SYD.

Repert. spec. nov. Regni veg., Beih. 42: 484 (1927)

Ref. CR: None.

Sel. lit.: Hawksworth (1976: 58, fig. 6A-B, 1981: 64-67), Sutton (1980: 25).

Host lichen in CR: *Lecanora chlarotera.*

Other known hosts: *Lecanora albella, L. allophana, L. argentata, L. campestris, L. horiza, L. intumescens, L. meridionalis, L. pulicaris, L. subrugosa.*

Observation: By its black opened conidiomata, situated at the edges of the disc adjoining the thalline margin, is *Vouauxiella lichenicola* easily recognizable in the field from similar infections, caused on the same hosts by *Stigmidium congestum* or *Lichenoconium lecanorae*.

It is distinguished by smooth non-septate conidia from *Vouauxiella verrucosa* (VOUAUX) PETR. et SYD. with coarse, wart-like conidia of comparable size [the latter species also occurs in apothecia of *Lecanora chlarotera* s. l. (Hawksworth 1976: 58)].

Distribution: EUROPE: Austria (Türk and Wittmann 1987: 145, Wittmann and Türk 1987: 395, Wittmann et al. 1989: 472, Hafellner et al. 1992: 120, Obermayer 1993: 144, Türk and Poelt 1993: 137, Hafellner and Mauer 1994: 132, Hafellner and Türk 1995: 632), British Isles (Hawksworth 1979a: 287, Hawksworth et al. 1980: 104, Hawksworth 1981: 66, Fox 1997: 1), Denmark (Alstrup et al. 1988: 26, Alstrup et al. 1995: 89), Estonia (Jüriado et al. 1999: 102), Finland (Vitikainen 1991: 43, Vitikainen et al. 1997: 66), France (Diederich and Roux 1991: 24, Coste 1994: 213), Germany (Erichsen 1930: 62, Hawksworth 1981: 66, Wirth 1994: 26, Roux and Triebel 1994: 486, Sholz 1995: 393), Italy: Marettimo (Nimis et al. 1994: 260), Luxembourg (Diederich 1986: 25, 1989: 255), Slovak Republic (Věžda 1963: 159), Slovenia (Grube et al. 1995: 194, Mayrhofer et al. 1996: 125, Grube et al. 1998: 185), Spain (Santesson 1960: 519, Hawksworth 1981: 66, Alvarez and Carballal 1992: 368, Etayo and Breuss 1996: 228, Martínez and Hafellner 1998: 281), Spain: Mallorca (Etayo 1996b: 120), Sweden (Hawksworth 1981: 66, Santesson 1986: 17, 1993: 237), Switzerland (Ruoss 1991: 213); N. AFRICA: Morocco (Egea 1996: 108, Maire and Werner 1938: 125, Hawksworth 1981: 66), Portugal: Madeira (Kalb and Hafellner 1992: 93, Hafellner 1995c: 101), Spain: Canary Islands (Santesson 1994b: 18, Hafellner 1995c: 101); and N. AMERICA: (Santesson 1960: 519, Esslinger and Egan 1995: 537), U.S.A (Hawksworth 1981: 66).

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Nymburk, between Studce and Mcely, NNR Čtvrtě, in a forest, on the bark of *Quercus robur*, on *Lecanora chlarotera*, 255 m, MTB 5756; 20.IX.1997, coll. J. K. (PRM 891194).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Strážné, on the bark of *Fraxinus excelsior*, on *L. chlarotera*, 735 m, MTB 5359; 31.X.1995, coll. J. H. (PRM 889694). - Orlické hory Mts., Distr. Rychnov n. Kněžnou, Bartošovice, on *L. chlarotera*, MTB 5865; 570 m, 20.IV.1996, coll. J. H. (PRM 891388).

Western Moravia, Distr. Žďár n. Sázavou, between Zahradiště and Krásněves, near the Rozběhlo lake, on the bark of *Acer platanoides*, on *L. chlarotera*, 550 m, MTB 6561; 5.VII.1997, coll. J. K. and P. K. (PRM 758633).

Additional specimen examined: GERMANY, Württemberg, Schwäbische Alb: Bad Urach, Wittlingen, Ruine Hohenwittlingen, ca. 670 m, on *Tilia*, on *Lecanora* sp., MTB 7522/2, 9.VII.1998, coll. V. Wirth, det. J. K. (hb. Wirth 31857).

Vouauxiomyces DYKO et D. HAWKSW.

Lichenologist 11: 57 (1979)

Species of this genus are coelomycetous anamorphs of species of ascomycetous genus *Abrothallus*.

Vouauxiomyces santessonii D. HAWKSW.

Bull. Brit. Mus., Nat. Hist., Bot. ser. 9: 69 (1981)

Ref. CR: None.

Sel. lit.: Hawksworth (1981a: 69-70, figs 33C, D)

Host lichen in CR: *Platismatia glauca.*

Known hosts: *Platismatia glauca* only.

Observation: In examined specimens we saw pycnidial state without its teleomorph only. No thallus deformation was observed. The measured size of conidia, of 7.5-10.5 x 5.5-7 µm in the below mentioned specimens are fully in correspondence with the original diagnosis of *Vouauxiomyces santessonii* D. HAWKSW. (Hawksworth 1981: 69).

Notes: Hawksworth (1981a: 69) described this fungus as the anamorph of *Abrothallus parmeliarum* and followed this conception also in his treatment of lichenicolous fungi from Greenland (Alstrup and Hawksworth 1990: 74). However, *A. parmeliarum* was recognized to be restricted only to hosts of *Parmelia* s. str. In addition, unlike *A. cetrariae* which is a parasymbiont, *A. parmeliarum* badly affects the host thalli, on which it causes gall-like deformations. *Vouauxiomyces santessonii* was found to be an anamorph of *Abrothallus cetrariae* (Hafellner 1995a: 434, Kalb and Hafellner 1992: 47).

Hawksworth (1981a: 72) mentioned also an anamorph of *A. cetrariae* with a smaller size of conidia (4.9-6.5 x 3.9-4.9 µm) found by Kotte (1909: 84). Hawksworth (1981a: 72) mentioned anamorphs of two different *Abrothallus* species on *Platismatia glauca* which are distinguished by the size of conidia, 4.9-6.5 x 3.9-4.9 µm in *Vouauxiomyces*-anamorph of *A. cetrariae* and 7.5-10.5 x 5.5-7 µm in *Vouauxiomyces santessonii*, the anamorph of *A. parmeliarum.*

Distribution: According to Hafellner (1995a: 434), *Vouauxiomyces santessonii* is widely distributed. However, it has been reported only from EUROPE: Austria (Wittmann and Türk 1987: 396, 1988: 520; Hofmann 1991: 39, 1993: 271; Türk and Poelt 1993: 137, Santesson 1994a: 18, Hafellner 1996b: 82), Estonia (Jüriado et al. 1999: 102), Slovenia (Mayrhofer et al. 1996: 125), Sweden (Hawksworth 1981: 69, Santesson 1993: 237) and N. AFRICA: Spain: Canary Islands (Hafellner 1995a: 434).

The previous reports of this anamorph on *Parmelia* s. str. are referred probably to an undescribed *Vouauxiomyces* sp., the anamorph of *Abrothallus parmeliarum* s. str.

Specimens examined: CZECH REPUBLIC: Southern Bohemia, Šumava Mts., Distr. Prachatice, Volary, Mt. Stožec, Medvědice nature reserve, on *Platismatia glauca*, 920-930 m, MTB 7148; 26.III.1994, coll. Z. Palice, det. J. K. (PRM 758507).

Southern Moravia, Distr. Hodonín, Lanžhot, Cahnov nature reserve, on the bark of *Fraxinus angustifolia*, on *Platismatia glauca*, 150 m, MTB 7367; 23.IX.1998, coll. Z. Hradílek, det. J. K. (PRM 892550).

Vouauxiomyces sp. - anamorph of *Abrothallus caerulescens* KOTTE

Ref. CR: None.

Host lichens in CR: *Xanthoparmelia conspersa, X. somloënsis.*

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, Bukov, on a slope of Liščí skály hill, on *Xanthoparmelia conspersa* (th.), 420 m, MTB 5847; 22.II.1997, coll. J. H. and P. K. (PRM 892546, sub the name of its teleomorph-*Abrothallus caerulescens*). - Distr. Rakovník, BR Křivoklátsko, between the villages of Roztoky and Karlova Ves, above the Berounka River, on a spilite rock, on *Xanthoparmelia somloënsis*, 290 m, MTB 6048; 26.VII.1998, coll. J. K. and P. K. (PRM 758635).

Southern Moravia, Distr. Znojmo, the Podyjí NP, in the Havranické vřesoviště heath, on a granite bouder, on *X. conspersa* (th.), 320 m, MTB 7161; 4.VI.1998, coll. J. K. (PRM 758279). - Distr. Znojmo, Bítov, on rocks near the castle, on *X. somloënsis*, 400 m, MTB 7060; 5.IX.1998, coll. J. K. (PRM 892641). - Distr. Znojmo, Chvalatice, the Vranov reservoir, on the S exposed slope near the "Chvalatická zátoka" creek, on quartzite boulders, on *X. conspersa*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 892655).

Weddellomyces D. HAWKSW.

Notes Roy. Bot. Garden Edinburgh 43: 511 (1986)

Nine species are currently known in this genus originally established by Hawksworth (1986) as a monotypic one for the fungus previously known as *Verrucaria epicallopisma* WEDD. The genus *Weddellomyces* is characterized by having cephalothecioid plates on the upper part of the ascomata wall and by the spores transversely septate, brown, usually with distinct pores in septa.

Weddellomyces xanthoparmeliae CALATAYUD et NAV.-ROS.

Mycotaxon 59: 505 (1998)

Ref. CR: Kocourková (1999: 184).

Sel. lit.: Calatayud and Navarro-Rosinés (1998, figs 1-4), Kocourková (1999, figs 1-10).

Host lichens in CR: *Xanthoparmelia conspersa, X. somloënsis.*

Other known host: *Xanthoparmelia* cf. *protomatrae.*

Observation: *Weddellomyces xanthoparmeliae* is a parasitic fungus that clearly has a destructive effect on the host thallus. The medulla of the infected host tissue is intensively orange, the apothecia of the hosts are reduced in size. The infection starts to arise as very conspicuous, pink-orange spots, first 0.5-1 cm in diam. Later the spots expand concentrically up to 5 cm. The central necrotic part becomes fragmented and soon breaks off. Large perithecioid black ascomata of the fungus arise singly or in small groups at the margin of the necrotic host tissue. At first, they are immersed, later they lift and split the cortical layer and the upper part of the ascomata becomes reflexed as subglobose, ostiolate, black stars (150-230 µm diam.). Eventually they become clearly apparent.

Ecology: The fungus was present in a large quantity in all studied localities. This suggests that *W. xanthoparmeliae* will be found without difficulties where its hosts occur in situations with rather xerothermic habitats and in localities exposed to the sun or partly shaded, but with high air humidity due to the proximity of water sources.

It was found several times in a mixed infection with *Lichenostigma cosmopolites*, *Abrothallus caerulescens*, *Stigmidium xanthoparmeliarum*, *Lichenoconium usneae* and *Cornutispora* sp.

In summer 1999, two different fungi, *Weddellomyces xanthoparmeliae* and *Marchandiomyces corallinus*, causing very similar symptoms of infection were seen to grow on two different thalli of *Xanthoparmelia somloënsis* occurring closely together on a rock at the foot of the Točník castle in Central Bohemia. These were visible as pink circular necrotic spots of 2-3 cm averagely. Based on the presence of developed ascomata, one of the fungi could be recognized as *Weddellomyces xanthoparmeliae*, the other with several developed pink sclerotia was found out to be *Marchandiomyces corallinus*. The thallus of *Xanthoparmelia somloënsis* affected by *Marchandiomyces* grew over the thallus of *Aspicilia* sp., on which the infection continued to grow.

Distribution: The species is known in Spain and in the Czech Republic only.

Specimens examined: CZECH REPUBLIC: Central Bohemia, Distr. Rakovník, BR Křivoklátsko, Krakovec, near the Krakovec castle, on shale rocks, on *X. conspersa*, 430 m, MTB 5947; 20.VI.1999, coll. J. K. (PRM 758573, together with *Lichenostigma cosmopolites*). - Distr. Rakovník, BR Křivoklátsko, on the Čertova skála rock slope, on spilite, on *Xanthoparmelia* sp., 290 m, MTB 6048; 28.IX.1996, coll. J. H. (PRM 892559, together with *Lichenostigma cosmopolites*). - Distr. Rakovník, BR Křivoklátsko, between the villages of Skryje and Šlovice, on spilite by the Berounka River, on *X. somloënsis*, 290 m, MTB 6048; 26.VII.1998, coll. J. K. and P. K. (PRM 892558). - Distr. Rakovník, BR Křivoklátsko, Stříbrný luh nature reserve, in a mixed forest on the W exposed slope above the Berounka River, on rhyolite, on *X. conspersa*, 280 m, MTB 5949; 13.VII.1998, coll. J. K. and P. K. (PRM 892556). - Distr. Beroun, BR Křivoklátsko, below the Točník castle, on a porphyritic rock, on *X. somloënsis*, 370 m, MTB 6149; 6.VII.1998, coll. J. K. and P. K. (PRM 892557). - Ibid.: on *X. somloënsis* (PRM 758514, specimen of *Stigmidium xanthoparmeliarum*, together with *Lichenoconium usneae*). - The city of Praha, near Pitkovice, in the valley of the Pitkovický potok brook, Pitkovická stráň nature reserve, on shale, on *X. somloënsis*, 280 m, MTB 5953; 11.IX.1998, coll. J. K. (PRM 892560, together with *Abrothallus caerulescens* and *Lichenostigma cosmopolites*).

Southern Moravia, Distr. Znojmo, Chvalatice, the Vranov reservoir, near the "Chvalatická zátoka" creek, on the S exposed slope, on granite boulders, on *X. conspersa*, 360 m, MTB 7060; 6.IX.1998, coll. J. K. (PRM 758529). - Ibid.: (PRM 758527, specimen of *Cornutispora* sp., together with *Abrothallus caerulescens, Lichenostigma cosmopolites* and *Sclerococcum* sp.) - Ibid.: (PRM 758323, specimen of *Sclerococcum* sp.). - Distr. Znojmo, the Podyjí NP, Vranov n. Dyjí ca. 4 km SE of the village, ca. 4 km SE of the village, on the top of ridge above the river, on shale rocks, on *X. conspersa*, 490 m, MTB 7160; 4.IX.1998, coll. J. K. (PRM 757414). - Ibid.: (PRM 758616, together with *Abrothallus caerulescens, Lichenostigma cosmopolites* and *Lichenoconium usneae*).

Xanthoriicola D. HAWKSW.

Trans. Br. mycol. Soc. 61: 66 (1973)

The genus was established as monotypic for the mitosporic, below treated fungus.

Xanthoriicola physciae (KALCHBR.) D. HAWKSW.

Trans. Br. mycol. Soc. 61: 67 (1973)

Bas.: *Gymnosporium physciae* KALCHBR., Math. Termmeśz. Közlem. 3: 299 (1865)

Syn.: *Coniosporium physciae* (KALCHBR.) SACC., Syll. Fung. 4: 246 (1886)

Ref. CR: As *Gymnosporium physciae:* Thümen (1876: 527), Paul (1909: 145).

Exs. CR: Thümen: Fungi austriaci 531, as *Gymnosporium physciae.*

Sel. lit.: Hawksworth and Punithalingam (1973: 66-68), Hawksworth 1979a: 266, Figs 42, A-G).

Host lichen in CR: *Xanthoria parietina.*

Other known hosts: *Xanthoria polycarpa, X. steineri.*

Observation: The species is a parasitic hyphomycete on apothecia of host, which become totally black. In severe infections is affected also host thallus.

Distribution: EUROPE: Austria (Hafellner et al. 1992: 121, Obermayer 1993: 144, Türk and Poelt 1993: 138, Hafellner and Mauer 1994: 132), British Isles (Hawksworth and Punithalingam 1973: 67, Hawksworth 1979a: 266, Hawksworth et al. 1980: 104, Fox 1997: 1), Denmark (Alstrup et al. 1988: 26, Alstrup et al. 1995: 89), Estonia (Jüriado et al. 1999: 105), Finland (Vitikainen 1991: 43, Vitikainen et al. 1997: 67), France, Hungary (Hawksworth 1979a: 266), Germany (Wirth 1994: 26), Italy (Santesson 1994a: 18), Italy: Marettimo (Nimis et al. 1994: 260), Luxembourg (Diederich et al. 1988: 33, Diederich 1989: 256, John 1990: 263), Norway (Santesson 1993: 239), Slovak Republic (Kalchbrenner 1865: 299, as *Gymnosporium physciae*), Spain (Santesson 1960: 520, Hawksworth 1979a: 266), Spain: Mallorca (Etayo 1996b: 120), Sweden (Hawksworth 1979a: 266, Santesson 1986: 18, 1993: 239; Thor 1993: 115), Ukraine (Kondratyuk and Kolomiets 1997: 45, Kondratyuk et al. 1998b: 164, Kondratyuk 1999: 38) and N. AFRICA: Spain: Canary Islands (Hafellner 1995a: 435, 1995c: 103).

Specimens examined (all on *Xanthoria parietina*): CZECH REPUBLIC: Northern Bohemia, Distr. Teplice, Teplice, ("Teplitz, in *Physciam parietinam*, hieme 1872 ipse legi."), MTB 5348; winter 1872, coll. F.K.A. Thümen (PRM 681159, Thümen, fungi austriaci no. 531, as *Gymnosporium physciae*).

Western Moravia, Distr. Třebíč, Rouchovany, in the valley of Rouchovanka near Nové Dvory, on the bark of *Populus nigra*, 350 m, MTB 6962; 14.IX.1971, coll. A. Vězda (hb. Vězda, BRA 105b, as *Coniosporium physciae*).

Southern Moravia, Distr. Břeclav, Dolní Věstonice, on the Dyje River bank, 200 m, MTB 7165; 3.V.1966, coll. A. Vězda (hb. Vězda, as *C. physciae*).

Additional specimen examined: SLOVAK REPUBLIC: Eastern Slovakia, Spišské Vlachy, ("Scepusci ad Olaszinum"), on *Xanthoria parietina*, XI.1859, coll. C. Kalchbrenner (BRA 59-Holotypus).

Zwackhiomyces GRUBE et HAFELLNER
Nova Hedwigia 51: 305 (1990)

The genus *Zwackhiomyces* belongs to the family *Xanthopyreniaceae* from Pyrenulales. So far, the genus comprises obligately lichenicolous, parasitic or parasymbiotic fungi with pyriform ascomata, hamathecium of persistent anastomosed paraphysoids, 8-spored fissitunicate asci with hyaline, verruculose, 2-celled spores with cells of different size.

Zwackhiomyces dispersus (LAHM ex KÖRB.) TRIEBEL et GRUBE
Nova Hedwigia 51: 314 (1990)

Ref. CR: None.

Host lichen in CR: *Protoblastenia rupestris.*

Known hosts: *Protoblastenia rupestris, P. terricola.*

Note: For description and illustrations see Grube and Hafellner (1990: 314-316) and also Triebel (1989: 119).

Distribution: EUROPE: Estonia (Jüriado et al. 1999: 105, as *Z. sphinctrinoides*), Finland (Vitikainen et al. 1997: 67), Germany (Grube and Hafellner 1990: 314-316, Wirth 1994: 26), Great Britain (Grube and Hafellner 1990: 314-316), Spain (Renobales 1996: 100, as *Didymella sphinctrinoides*; Etayo and Diederich 1998: 119), Sweden (Eriksson 1992: 114, Santesson 1993: 240); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 227, Zhurbenko and Santesson 1996: 160); N. AFRICA: Morocco (Egea 1996: 108) and N. AMERICA (Egan 1991: 399, Esslinger and Egan 1995: 538).

Specimen examined: CZECH REPUBLIC: Central Bohemia, the city of Praha, Prokopské údolí valley, on calcareous rocks above the old swimming pool Holyňské koupaliště, on *Protoblastenia rupestris* (th.), 260 m, MTB 5952; 6.XI.1994, coll. J. H. (PRM 758545).

Zwackhiomyces sphinctrinoides (ZWACKH) GRUBE et HAFELLNER
Nova Hedwigia 51: 327 (1990)

Syn.: *Didymella sphinctrinoides* (ZWACKH) BERL. et VOGL. Syll. Fung., Addit ad 1-4: 89 (1886) et 9: 671 (1891)

Ref. CR: Kocourková-Horáková (1998: 237-238).

Sel. lit.: Grube and Hafellner (1990: 327-329, fig. 18).

Host lichen in CR: *Lecanora pseudistera.*

Other known hosts: *Lecanora albescens, L. campestris, L. dispersa.*

Note: Although *Lecanora pseudistera* is a rare lichen, it serves as a host for two obligate lichenicolous fungi, except for *Zwackhiomyces sphinctrinoides* also for the lichenized species *Tephromela campestricola* (NYL.) RAMBOLD et TRIEBEL (Hawksworth and Atienza 1994: 50).

Distribution: EUROPE: Finland (Vitikainen et al. 1997: 67), Germany (Grube and Hafellner 1990: 327), Sweden (Eriksson 1992: 114, Santesson 1993: 240) and Ukraine (Kondratyuk et al. 1998b: 164, Kondratyuk 1999: 38).

Specimen examined: CZECH REPUBLIC: Central Bohemia, BR Křivoklátsko, Distr. Rakovník, on a steep slope of the Čertova skála rock, on soil in a spilite rock slot, on *Lecanora pseudistera*, 280 m, MTB 6048; 10.IV.1996, coll. J. H. and P. K. (PRM 891442, also present: *Endococcus pseudocarpus* on *Peltula euploca*).

2. Reliable literature records

Genus characteristics are generally added only when a member is from until now untreated genus.

Arthonia varia (TUL.) JATTA
Syll. Lichen.: 471 (1900)

Syn: *Celidium varium* (TUL.) KÖRB., Parerga Lich. 456 (1865)

Ref. CR: Kuťák (1910: 201, as *Celidium varium*).

Host lichen in CR: *Xanthoria parietina* f. *rutilans*.

Other known host: *Xanthoria parietina*.

Note: *Arthonia varia* may be confused with *Opegrapha physciaria*, which has similar 3-septate, brown, ornamented spores when mature, of 12-18 x 4-6 µm diam. Two or three additional fungi of the genus *Arthonia* may also grow on *Xanthoria parietina*, however, no of them possesses spores with these characters (see note under *Arthonia epiphyscia* in this paper, p. 66).

Distribution: The species occurs in EUROPE: France (Vouaux 1914: 172, Rondon 1970: 738), Germany (Vouaux 1914: 172), Italy (Nimis (1993: 84), Romania (Moruzi et al. 1967: 64); N. AFRICA: Morocco (Maire and Werner 1938: 39) and N. AMERICA: Esslinger and Egan (1995: 472).

Specimen (not seen): Eastern Bohemia, Distr. Pardubice, near Brozany, on poplars, on *Xanthoria parietina* f. *frutilans*, MTB 5960; coll. V. Kuťák (?PRM).

Arthonia varians (DAVIES) NYL.
Lichen. Scand.: 260 (1861)

Bas.: *Lichen varians* DAVIES, Transact. Linn. Soc.Bot. 2: 284 (1794)
Lichen varians HALL., The British Flora: 289 (1749), inval. publ.
Syn.: *Celidium varians* (DAVIES) ARNOLD, Flora 44: 678 (1862)
Arthonia glaucomaria NYL., Mém. Soc. Sci. Nat. Cherbourg 4: 98 (1856) et in Act. Soc. Linn. Bord. 21: 414 (1856)

Ref. CR: Novák (1888: 53, 1893: 53, both as *Celidium varians*), Kovář [1907: 41, as *Celidium varians* on *Lecanora subcarnea* (as *L. sordida* var. *subcarnea*)].

Sel. lit.: Kalb and Hafellner (1992: 51).

Host lichen in CR: *Lecanora rupicola, L. subcarnea*.

Other known hosts: *Lecanora bicincta, L. helicopis, L. swartzii*. Also reported on *L. dispersa* s. l. (Calatayud et al. 1995: 368).

Distribution: EUROPE: Austria (Türk and Wittmann 1987: 50, as *A. glaucomaria*, Hafellner and Sancho 1990: 365, Hofmann et al. 1993: 843, Berger and Türk 1993a: 171, Türk and Poelt 1993: 5, all as *Arthonia glaucomaria*; Hafellner and Türk 1995: 602), British Isles (Purvis et al. 1992: 87; Navarro-Rosinés et al. 1996: 174, as *A. glaucomaria*), Denmark: Bornholm (Alstrup 1994: 51), Finland (Vitikainen et al. 1997: 8, as *A. glaucomaria*), France: Corsica (Hafellner 1994a: 220, as *A. glaucomaria*), Germany (Erichsen 1930: 61, Wirth 1994: 5, both as *A. glaucomaria*), Greece (Zervakis et al. 1999: 488, as *A. glaucomaria*), Italy (Nimis 1993: 84, Puntillo 1996: 31), Norway (Santesson 1993: 16, as *A. glaucomaria*), Norway: Spitsbergen (Aptroot and Alstrup 1991: 73, as *A. glaucomaria*), Poland (Fałtynowicz 1993: 3), Russia: Ural (Rjabkova 1998: 82, as *A. glaucomaria*), Ural-Novaya Zemlya (Andreev et al. 1996: 140, as *A. glaucomaria*), Spain (Hafellner and Sancho 1990: 364, Calatayud et al. 1995: 368, Renobales 1996: 50, all as *A. glaucomaria*), Sweden (Santesson 1993: 16, 1998: 3, both as *A. glaucomaria*), Turkey (John 1996: 178); ASIA: Russia: Beringian Chukotka (Andreev et al. 1996: 140, as *A. glaucomaria*); N. AFRICA: (Alstrup and Hawksworth 1990: 17, as *A. glaucomaria*), Spain: Canary Islands (Hawksworth 1982b: 83, Calatayud and Barreno 1995: 260, Calatayud et al. 1995: 368, Hafellner 1995c: 8) and N. AMERICA: (Egan 1991: 396, Esslinger and Egan 1995: 472, both as *A. glaucomaria*), Canada: British Columbia (Alstrup and Cole 1998: 222), Greenland (Alstrup and Hawksworth 1990: 17, as *A. glaucomaria*), U.S.A.: Arizona (Triebel et al. 1991: 267, as *A. glaucomaria*).

Note: According to Hafellner and Sancho (1990: 364), who reported many records of this fungus from siliceous rocks in Austrian and central - Spanish mountains, the species is rather common. Unfortunately, we have never collected this species in the Czech Republic, despite the fact that one of the hosts, *Lecanora rupicola*, is very common especially in Central Bohemia in the Biosphere Reserve Křivoklátsko. However, this area is situated in the lowlands and according to published records, it is apparent that *Arthonia varians* rather prefers montane regions.

Specimens (not seen): CZECH REPUBLIC: Eastern Bohemia, Distr. Havlíčkův Brod, near the town, at the chapel of Sv. Salvátor, on *Lecanora rupicola* (as *L. sordida*), ?MTB 6260; coll. J. Novák (?).
Western Moravia, Distr. Žďár n. Sázavou, by the field path from Samotín to the rocks Malinská skála and Juranková, on large stones, on *Lecanora subcarnea* (as *L. sordida* var. *subcarnea*), MTB 6561; w. date, coll. F. Kovář (?OLM).

Carbonea (HERTEL) HERTEL
Mitt. bot. Staatssamml. München 19: 441 (1983)

The genus belonging to *Lecanoraceae* comprises both, lichens and lichenicolous fungi. The exhaustive references to the distribution data of two lichenicolous lichens *Carbonea assimilis* (KÖRB.) HAFELLNER et HERTEL and *Carbonea distans* (KREMP.) HAFELLNER et OBERMAYER, which occur in the Czech Republic, are provided by Vězda and Liška (1999).

Carbonea vitellinaria (NYL.) HERTEL
Mitt. bot. Staatssamml. München 19: 442 (1983)

Syn.: *Lecidea vitellinaria* NYL., Bot. Not.: 177 (1852)

Ref. CR: Anders (1922: 281, 308, as *Lecidea vitellinaria*).

Host lichen in CR: *Candelariella vitellina*.

Other known hosts: *Candelariella canadensis, C. coralliza, C. kuusamoensis, C. placodizans, C. rosulans, C. terrigena, C. xanthostigma*. Hosts other than *Candelariella* such as *Lecidea* sp., *Pyrenopsis* cfr. *pulvinata*, *Rhizocarpon* sp., *Toninia* sp., are dubious.

Ecology: *Carbonea vitellinaria* is widely distributed in montane to alpine regions where it grows on saxicolous, terricolous and muscicolous *Candelariella* spp.

Distribution: EUROPE: Austria (Türk and Wittmann 1987: 67, Wittmann et al. 1989: 458, Vězda 1989a: 6, Mayrhofer et al. 1989: 219, Hafellner and Sancho 1990: 366, Hafellner 1991: 99, Berger and Türk 1993a: 176, Hofmann et al. 1993: 849, Türk and Poelt 1993: 25, Hafellner and Mauer 1994: 119, Boom et al. 1996: 632, Hofmann et al. 1998: 158, Pfefferkorn-Dellali and Türk 1998: 22), British Isles (Hitch 1998: 44), Denmark: Faeroe Islands (Alstrup et al. 1994: 85), Estonia (Jüriado et al. 1999: 25), France: Corsica (Hafellner 1994a: 222), Germany (Kümmer-

ling 1991: 251, Wirth 1995: 250), Greece (Zervakis et al. 1999: 493), Italy (Hafellner and Sancho 1990: 366, Nimis 1993: 196, Puntillo 1996: 55), Italy: Sardinia (Nimis and Poelt 1987: 78), Norway (Hafellner 1993: 751, Santesson 1993: 52), Russia: Franz Josef Land (Zhurbenko and Santesson 1996: 151), Slovak Republic (Servít and Nádvorník 1932: 28, Lisická 1998: 34), Spain (Santesson 1960: 512, as *Lecidea vitellinaria*; Navarro-Rosinés and Hladún 1987: 435, Hafellner and Sancho 1990: 366), Sweden (Thor 1992: 22, Thor 1993: 110, Santesson 1984: 4, 1986: 11, 1988: 11, 1993: 52), Switzerland (Boom et al. 1993: 19); ASIA: Cyprus (Litterski and Mayrhofer 1998: 60), Russia: Chukotka (Zhurbenko and Santesson 1996: 151), Taymyr Peninsula (Zhurbenko 1996: 224, Zhurbenko and Santesson 1996: 151, Zhurbenko 1998: 155), Putorana Plateau (Zhurbenko 1996: 224, Zhurbenko and Hafellner 1999: 73), Yana-Kolyma area Andreev et al. 1996: 143), China, Pakistan, Mongolia (Hertel 1982: 148); N. AFRICA: Morocco (Maire and Werner 1938: 39, Egea 1996: 107) and N. AMERICA: (Esslinger and Egan 1995: 481), Canada (Triebel et al. 1991: 269), Greenland (Alstrup and Hawksworth 1990: 21), U.S.A. (Triebel et al. 1991: 269).

Specimen (not seen): CZECH REPUBLIC: Northern Bohemia, Distr. Děčín, Draslerstein near Nový Bor, on basalt, ("auf dem Basalt des Draslersteins bei Haida"), MTB 5253; coll. J. Anders (PRM-not found).

Specimen examined: FRANCE: Corsica, near the village of Solenzara, in the saddle of Bavela hill, on a granite rock, on *Candelariella vitellina*, 1180 m, 30.VII.1994, coll. J. H. (PRM 890776).

Chaenothecopsis vainioana (NÁDV.) TIBELL
Publ. Herb. Univ. Uppsala 4: 5 (1979)

Bas.: *Calicium vainioanum* NÁDV., Preslia 18-19: 128 (1940)

Ref. CR: As *Calicium vainioanum*: Nádvorník (1940: 128).

Host lichen in CR: ?, Nádvorník (l. c.) did not mention any host.

Known host: *Calicium lenticulare.*

According to Purvis et al. (1992: 184), the findings in the British Isles are associated with *Trentepohlia* or *Trentepohlia*-containing lichens (*Arthonia leucopellaea, Lecanactis abietina*).

Distribution: *Chaenothecopsis vainioana* occurs only in EUROPE: Belgium (Diederich et al. 1991: 17), British Isles (Purvis et al. 1992: 184), Estonia (Lõhmus 1998: 44, Jüriado et al. 1999: 30), Denmark, Finland, Greece (Tibell 1981a: 59), Luxembourg (Diederich et al. 1991: 17), Russia (Hermansson and Kudryatseva 1995: 77), Spain (Tibell 1997: 294), Sweden (Tibell 1981a: 57, 1997: 294) and Ukraine (Titov 1998a: 131, 1998b: 91).

Specimen (not seen): CZECH REPUBLIC: Southern Moravia, Distr. Znojmo, near the Nový Hrádek castle ("Znaim: Erdberg"), on the bark of *Quercus*, MTB 7161; 1922, coll. J. Suza (?BRA-Typus).

Cyphelium ACH.
Kungl. Vetensk. Acad. Handl. 1815: 261 (1815)

Species of the genus *Cyphelium* are mazediate calicioid lichens or non-lichenized fungi. *Cyphelium sessile* (PERS.) TREVIS. and *Cyphelium marcianum* DE LESD. are parasymbiotic or parasitic species.

Cyphelium sessile (PERS.) TREVIS.
Flora 45: 4 (1862)

Syn.: *Acolium sessile* (PERS.) ARNOLD, Flora 68: 49 (1885)
Cyphelium stigonellum ACH., Kungl. Vetensk. Acad. Handl.: 268 (1815)

Ref. CR: Anders (1922: 274), Lisická (1981: 58), Nádvorník (1942: 13), Suza (1925: 104); as *Acolium sessile*: (Kovář 1906: 65); as *Acolium stigonellum*: Körber (1861: 284), Rabenhorst (1870: 26), Stein (1879: 294), Novák (1888: 62, 1893: 63), Kovář (1909: 7); as *Cyphelium stigonellum*: Migula (1931: 476).

Sel. lit.: Tibell (1969: 479-480, 1971: 157-158, 1984: 667-669).

Note: The reports of *Cyphelium sessile* by Kovář (1906, 1909) are, according to Nádvorník (1942), based on *Cyphelium inquinans* (SM.) TREV. species misidentification. However, Lisická (1981: 59), who listed all known localities from the Czech Republic, revised both specimens collected by Kovář as *Cyphelium karelicum*. She considered Suza's record of *C. sessile* (l.c.) from Moravia as dubious. The remaind specimens should be revised to verify presence or absence of this species in the Czech Republic.

Host lichen in CR: *Pertusaria pertusa, Pertusaria* sp.

Other known hosts: *Pertusaria albescens, P. amara, P. coccodes, P. coronata.*

Ecology: Comensalistic to slightly pathogenic species. It causes considerable modification of the host thallus, which becomes usually darker in colour and the production of soredia and isidia is partly supressed. It grows on trunks of old oaks (Purvis et al. l. c.) in partly shaded habitats in Pertusarietum hemisphaericae and other related associations in temperate regions. In Central Europe, *Cyphelium sessile* is a very rare species.

Thus, the Czech report on the spruce bark from the Krkonoše Mts. is dubious.

Distribution: The species is distributed in subatlantic and Central Europe.

EUROPE: Austria (Türk and Wittmann 1987: 78, Türk and Poelt 1993: 41), British Isles (Purvis et al. 1992: 228), Denmark (Alstrup and Søchting 1989: 14), Estonia (Thor and Nordin 1998: 124, Lõhmus 1998: 44, Jüriado et al. 1999: 40), France (Tibell 1971: 157-158, Sérusiaux et al. 1999: 23), Germany (Wirth 1987: 178, John 1990: 134, Litterski 1993: 428, Wirth 1995: 367), Italy (Nimis 1993: 268, Puntillo 1996: 79), Luxembourg (Diederich et. al. 1988: 23, Diederich 1989: 98), Poland (Fałtynowicz 1993: 13), Portugal (Boom and Giralt 1999: 191), Slovak Republic (Lisická 1981: 59), Sweden (Tibell 1978a: 175, Santesson 1993: 75, Fritz 1998: 13), Ukraine (Oxner 1956: 330, Titov 1998a: 131, 1998b: 89; Kondratyuk 1999: 35) and N. AMERICA: (Esslinger and Egan 1995: 488).

Specimens (not seen): CZECH REPUBLIC: Western Bohemia, Krušné hory Mts., Rosenberg near the village of Krupka ("Erzgebirge, bei der Rosenburg nächst Graupen"), on the bark of old *Quercus*, on *Pertusaria* sp., MTB 5349; coll. L. Rabenhorst (?). - Slavkovský les Upland, Distr. Karlovy Vary, Mariánské Lázně, ("Auf dem Schneiderrang bei Marienbad"), ?MTB 6042; coll. G. W. Körber (?L). - Šumava Mts. ("im Böhmerwalde"), coll. Gattinger (?L).

Northern Bohemia, Krkonoše Mts., in the valley of the Pudlava brook ("im Thalgraben und um die Pudelbaude im Riesengebirge"), on bark of spruces, MTB 5259; coll. J. Ch. Flotow (?WRSL).

No specimen collected in the Czech Republic is located in PRM herbarium.

Dactylospora lobariella (NYL.) HAFELLNER
Nova Hedwigia, Beih. 62: 118-120 (1979)

Syn.: *Abrothallus viduus* KÖRB., Kryptog.-Fl. Schlesien 2(2): 211 (1879)
Abrothallus viduus KÖRB., Jahresber. Schles. Ges. Vaterl. Cult. 50: 169 (1873) (invalid. publ.)
Abrothallus lobariellus (NYL.) ZOPF, Hedwigia 35: 363 (1896)

Ref. CR: As *Abrothallus viduus*: Stein (1873: 169, 1879: 211), Schröter (1893: 132).

Sel. lit.: Hawksworth (1975b: 184, fig. 1, as *Abrothallus lobariellus*), Hafellner (1979: 118-120, fig. 20).

Host lichen in CR: *Lobaria pulmonaria.*

Other known hosts: *Lobaria amplissima, L. erosa, L. dissecta, L. meridionalis, L. querzicans, L. virens.*

Distribution: EUROPE: Austria (Türk and Poelt 1993: 42, Santesson 1994b: 4), British Isles (Hawksworth 1975b: 184, as *Abrothallus lobariellus*; Hawksworth et al. 1980: 35, Vězda 1980a: 7, Hawksworth 1983: 18), France (Vouaux 1913: 470, as *A. lobariellus*; Hafellner 1979: 120, Etayo and Diederich 1996b: 98-99), Norway (Santesson 1993: 76), Spain (Etayo and Diederich 1996b: 99, Martínez and Hafellner 1998: 280), Sweden (Karström and Thor 1991: 88, Santesson 1993: 76), Ukraine (Kondratyuk et al. 1998b: 65, Kondratyuk 1999: 35); N. AFRICA: Spain: Canary Islands (Hafellner 1995c: 30, Hawksworth 1982b: 83, Etayo 1996a: 101); S. AFRICA: S.A.R. (Keissler 1933: 381); N. AMERICA: (Esslinger and Egan 1995: 488), Canada: British Columbia (Goward et al. 1994: 56), Mexico (Hafellner 1979: 120), U.S.A.: Virginia (Hafellner 1979: 120); S. AMERICA: Ecuador (Hafellner 1979: 120) and AUSTRALASIA: New Zealand (Kondratyuk and Galloway 1994: 27).

First record for the Slovak Republic!

Specimens (not seen): CZECH REPUBLIC: Eastern Bohemia, Krkonoše Mts., the Labský důl valley ("Elbgrunde") above Sv. Petr, on *Fagus*, on *Lobaria pulmonaria* ("*Sticta pulmonaria*"), MTB 5260; coll. Sticker (?). - Krkonoše Mts., Mumlavský vodopád waterfall ("Mummelfall"), on the upper part of *Lobaria pulmonaria* (as *Sticta pulmonaria*), MTB 5258; coll. Sticker (?- Typus of *A. viduus*, Holotypus, according to Stein 1879: 211, and Schröter 1893: 132).

Specimens examined: BRITISH ISLES: Scotland, Assynt. Co., Inverpoly National Reserve, Rhegteanoch, in the shaded valley, on "Lewisian" rock, on *Lobaria virens*, 6.VIII.1992, coll. J. Jeník, det. J. H. (PRM 889660). - SLOVAK REPUBLIC: Northern Slovakia, Nízke Tatry Mts., in the Vajskovská dolina valley, ca. 2 km S of gamekeeper's lodge Pálenica, on the bark of *Acer pseudoplatanus*, on *Lobaria pulmonaria*, ca. 735 m, 5.IX.1985, coll. V. Skalický, det. J. K. (PRM 886715, specimen of *Lobaria pulmonaria*).

Dactylospora parasitica (FLÖRKE) ZOPF
Hedwigia 35: 341 (1896)

Syn.: *Leciographa inspersa* (TUL.) REHM, Kryptog. Fl. Deutschl. 2(1/2): 374 (1890)

Ref. CR: Vězda (1963: 156, as *Leciographa inspersa*).

Sel. lit.: Hafellner (1979: 93-96, fig. 9).

Host lichen in CR: *Ochrolechia lactea.*

Other known hosts: *Ochrolechia pallescens, O. parella, O. turneri, O. upsaliensis, Pertusaria albescens* var. *corallina, P. communis, P. hymenea, P. pertusa, P. rupestris, Pertusaria* sp. and also reported on *Megaspora verrucosa* (Zhurbenko 1996: 225, Zhurbenko and Santesson 1996: 153) and on *Graphis insidiosa* (Brodo 1995: 147).

Note: *Dactylospora parasitica* (FLÖRKE) ZOPF is a type of the genus *Dactylospora* KÖRB. *Dactylospora glaucomarioides* (WILLEY ex TUCK.) HAFELLNER, *Dactylospora parellaria* (NYL.) ARNOLD and *D. parasitica* are three known species of the genus which may grow on *Ochrolechia* species. *Dactylospora parasitica* is distinguished from the others by red-brown epithecium and hypothecium, hymenium 50-65 µm high and mostly 3-septate spores, 12-15 x 5-8 µm. The similar *Dactylospora glaucomarioides* has epithecium and hypothecium deep brown, spores are larger, 12-16(-19) x 5-8 µm, the number of their septa varies from 1 to 5.

Distribution: EUROPE: Austria (Türk and Poelt 1993: 42, Hafellner and Türk 1995: 609), British Isles (Hafellner 1979: 95, Hitch 1997b: 33), Croatia (Hafellner 1979: 96), Denmark: Faeroe Islands (Alstrup et al. 1994: 89, *D.* cfr. *parasitica*), France (Hafellner 1979: 95, Diederich and Roux 1991: 20), France: Corsica (Hafellner 1994a: 223), Germany (Erichsen 1930: 62, as *Leciographa inspersa*; Hafellner 1979: 95, John 1990: 134, Wirth 1994: 10), Italy (Hafellner 1979: 96), Italy: Sardinia (Nimis and Poelt 1987: 94), Poland (Fałtynowicz 1993: 14), Portugal (Boom and Giralt 1999: 187), Norway, Spain (Santesson 1960: 515, as *Leciographa inspersa*), Spain: Mallorca (Etayo 1996b: 115), Sweden (Santesson 1993: 76), Ukraine (Kondratyuk et al. 1998b: 65); ASIA: Russia: Taymyr Peninsula (Zhurbenko 1996: 225, Zhurbenko and Santesson 1996: 153); N. AFRICA: Portugal: Azores, Spain: Canary Islands (Hafellner 1995c: 30); N. AMERICA (Egan 1989: 69, Esslinger and Egan 1995: 488).

Specimen (not seen): CZECH REPUBLIC: Northern Moravia, Jeseníky Mts., Rýmařov, Mt. Rabštejn, on *Ochrolechia lactea* (th.), MTB 6068; 6.V.1956, coll. A. Vězda (hb. Vězda - not found).

Epibryon DÖBBELER
Mitt. bot. Staatssamml. München 14: 260 (1978)

The genus mainly includes bryophilous fungi, but lichenicolous species are also known.

Epibryon parvipunctum (STEIN) DIEDERICH
Lejeunia, nouv. sér. 162: 30 (1999)

Bas.: *Sagedia parvipuncta* STEIN, Crypt.-Fl. Schles. 2(2/2): 339 (1879)
Syn.: *Pharcidia parvipuncta* (STEIN) G. WINTER, Hedwigia 25: 14 (1886)
Sphaerulina parvipuncta (STEIN) SACC., Syll. Fung. 17: 695 (1905)

Ref. CR: Sérusiaux et al. (1999: 30); as *Sagedia parvipuncta*: Stein (1879: 339); as *Sphaerulina parvipuncta*: Keissler (1930: 436), Vouaux (1913: 35); as *Pharcidia parvipuncta*: Schröter (1894: 345).

Sel. lit.: Sérusiaux et al. (1999: 30-31, fig. 6).

Host lichen in CR: *Thelidium aeneovinosum.*

Other known host: *Thelidium minutulum.*

Distribution: Until recently *Epibryon parvipunctum* has been known from two localities only; from the type collection in the Czech Republic and from Poland "im Freudengraben bei Görbersdorf", where it was found by Eitner (1895). Fałtynowicz (1993: 34) very probably referred to this latter record. The two additional findings have been reported by Boom et al. (1998: 27) and by Sérusiaux et al. (1999: 30), both from Belgium. The type locality report listed in the latter paper as being in Poland is actually situated in the Czech Republic.

However, according to Sérusiaux et al. (1999: 30), the type specimen is lost.

Specimen (not seen): CZECH REPUBLIC: Krkonoše Mts., Mt. Studniční hora, Úpská jáma, Sněžná strouha, ("Böhmen, Riesengebirge: Schneegraben am Brunnenberge"), MTB 5260; coll. B. Stein. (WRSL-Typus lost).

Epicladonia sandstedei (ZOPF) D. HAWKSW.

Bull. Brit. Mus., Nat. Hist., Bot. ser. 9: 16 (1981)

Bas.: *Diplodina sandstedei* ZOPF, Abh. naturw. Ver. Bremen 18: 429 (1906)

Ref. CR.: As *Diplodina sandstedei*: Bachmann (1927: 150), Picbauer (1942: 195).

Sel. lit.: Hawksworth (1981a: 16-19, figs 5A, B, fig. 6).

Host lichen in CR: *Cladonia cornuta, C. pyxidata.*

Other known hosts: *Cladonia anomaea, C. carneola, C. coniocraea, C. chlorophaea, C. cyanipes, C. deformis, C. fimbriata, C. grayi, C. major, C. ochrochlora, C. pleurota, C. pocillum, C. ramulosa, C. subulata, C. symphycarpa, C. turgida.*

Note: *Epicladonia sandstedei* is distinguished from two additional species by its predominantly 1-septate, subcylindrical to narrowly ellipsoid conidia, with their apex always rounded and by the formation of galls on its hosts.

Distribution: EUROPE: Austria (Mayrhofer et al. 1989: 224, Türk and Poelt 1993: 45, Boom et al. 1996: 635, Hafellner 1999b: 517), Belgium (Diederich et al. 1991: 19), British Isles (Hawksworth 1981: 19), Denmark (Alstrup and Svane 1998: 24), Denmark: Faeroe Islands (Alstrup and Christensen 1999: 24), France (Hawksworth 1981: 19), Germany (Erichsen 1930: 62, Hawksworth 1981: 19), Spain (Alvarez and Carballal 1992: 364, Etayo and Breuss 1996: 217), Spain: Mallorca (Etayo 1996b: 115), Sweden (Hawksworth 1981: 19, Santesson 1993: 82) and Switzerland (Hawksworth 1981: 19); recently it has also been reported from ASIA: Russia (Zhurbenko 1998: 156) and N. AMERICA: British Columbia (Scholz 1998: 39).

Specimens (not seen): CZECH REPUBLIC: Bohemia, coll. M. Servít (?, PRM-not found).

Northern Moravia, Jeseníky Mts., Vernířovice ("Weikersdorf") near Sobotín ("Zöptau"), on *C. pyxidata*, coll. Dr. Černík (?BRM).

Obryzum WALLR.

Naturg. Flecht. 1: 253 (1825)

This monotypic genus was placed by Eriksson (1981) to the family *Gnomoniaceae.*

Obryzum corniculatum WALLR.

Naturg. Flecht. 1: 253 (1825)

Syn.: *Sphaerulina corniculata* (WALLR.) VOUAUX, Bull. Soc. mycol. France 29: 36 (1913)
Guignardia corniculata (WALLR.) KEISSL., Annal. Naturhist. Mus. Wien 39: 195 (1925)

Ref. CR: Flotow (1850: 166), Rabenhorst (1870: 83), Migula [1929: 436, as *Leptogium palmatum* (HUDS.) MONT.].

Sel. lit.: Eriksson (1981: 113), Kalb and Hafellner (1992: 76).

Host lichen in CR: *Leptogium* sp.

Other known hosts: *Leptogium palmatum, L. teretiusculum, Leptogium* sp.

Ecology: This inconspicuous species has, according to Kalb and Hafellner (1992: 76), an oceanic affinity in distribution and it is confined to hosts of *Collemataceae.* Several collections are also known from Central Europe.

Distribution: EUROPE: British Isles (Vouaux 1913: 36, Keissler 1930: 349, Hawksworth 1983: 10), France (Nylander 1960: 136, Vouaux 1913: 36, Keissler 1930: 349), Germany (Nylander 1960: 136, Vouaux 1913: 36, Keissler 1930: 349, Wirth 1994: 17), Ireland (Hawksworth 1983: 10), Norway (Santesson 1993: 148), Sweden (Eriksson 1992: 79, Santesson 1993: 148) and N. AFRICA: Portugal: Madeira (Kalb and Hafellner 1992: 76, Hafellner 1995c: 58).

Specimen (not seen): CZECH REPUBLIC: Central Bohemia, the city of Praha, in the Prokop valley, behind "Wirtshause", on mosses on a calcareous rock, coll. M. Servít (PRM-not found).

Opegrapha parasitica (A. MASSAL.) H. OLIVIER.

Bull. Acad. Internat. Géogr. Bot. 16: 190 (1906)

Syn.: *Leciographa parasitica* A. MASSAL., Geneac. Lich.: 14 (1854) (nomen nudum); Symm. lich. nov.: 66 (1855)

Ref. CR: As *Leciographa parasitica*: Anders (1928: 324).

Note: Specimen published by Vězda (1970: 224) under this name belongs to *Opegrapha rupestris* PERS. (see under that name, p. 108).

Sel. lit.: Triebel (1989: 229), Hafellner (1994b: 18).

Host lichen in CR: *Aspicilia calcarea.*

Other known hosts: *Aspicilia calcarea* agg.

Distribution: EUROPE: Italy (Triebel 1989: 229, Nimis 1993: 461, as *O. rupestris*), Poland (Fałtynowicz 1993: 25, as *Leciographa parasitica*). Distribution data of this species are difficult to provide. Reports on this fungus, presented untill issuing the Hafellner's key of the lichenicolous *Opegrapha* species occurring in Europe (Hafellner l.c.) are usually given under the name of *Opegrapha rupestris* PERS., a species restricted to the hosts of the genus *Verrucaria.*

Specimen (not seen): CZECH REPUBLIC: Northern Bohemia, Distr. Česká Lípa, Polomené hory Highlands ("Kummergebirge"), coll. J. Anders (PRM-not found).

Stigmidium allogenum (NYL.) D. HAWKSW.
Kew Bull. 30: 201 (1975)

Bas.: *Verrucaria allogena* NYL., Flora 48: 357 (1865)
Syn.: *Pharcidia allogena* (NYL.) SACC., Syll. Fung., 17: 648 (1905)
Cercidospora minima STEIN, Arch. Přírod. Výzk. Čech 7: 56 (1888)
Pharcidia minima (STEIN) VOUAUX, Bull. Soc. mycol. France 28: 244 (1912)
Pharcidia innatula (NYL.) SACC., Syll. Fung. 17: 447 (1897)

Ref. CR: Novák (1888: 56, 1893: 56, both as *Cercidospora minima*), Vouaux (1912: 244, as *Pharcidia minima*), Keissler (1930: 364, as *Pharcidia allogena*).

Host lichen in CR: *Gyalideopsis athalloides.*

Other known hosts: *Dacampia hookeri, Rhizocarpon petraeum.*

Discussion: The name *Pharcidia minima* was listed by (Keissler 1930: 362-364) together with *Pharcidia innatula* and *Pharcidia psorae* among the synonyms of *Pharcidia allogena* which is now known as *Stigmidium allogenum.* Clauzade et al. (1989: 89) followed this broad Keissler's concept.

However, based on the recent taxonomic revisions in the genus and on related taxa, carried out by Roux and Triebel (1994), Roux and Navarro-Rosinés (1994) and Roux et al. (1995), it is obvious that the species of *Stigmidium* are confined to a rather narrow host spectrum. The narrow species concept was already implemented by Vouaux (1912: 233-245), who treated *Pharcidia allogena, P. conspurcans, P. innatula, P. minima* and *P. psorae* as separate taxa, but considered *P. innatula* and *P. minima* as closely related to *P. allogena.*

Pharcidia psorae of the *Stigmidium allogenum*-complex is now known as a separate taxon *Stigmidium psorae* (ANZI) HAFELLNER (Vězda 1984b, Triebel 1989: 83), growing on *Psora crenata* and *P. decipiens*, but according to Calatayud and Triebel (1999: 444), its position in the true *Stigmidium* has not been clarifieded yet. *Stigmidium conspurcans* (TH. FR.) TRIEBEL et R. SANT. [syn. *Pharcidia conspurcans* (TH. FR.) G. WINTER] also occurs on a member of *Psora*, namely *Psora rubiformis* and it is regarded now as a separate species (Triebel 1989: 81-82).

Pharcidia innatula, another taxon considered by Keissler (l.c.) and Clauzade et al. (l.c.) as a synonym of *S. allogenum*, is a fungus occurring on *Dacampia hookeri* [Vouaux 1912: 245, Hawksworth 1983: 13, as "*Arthropyrenia*" *allogena* (NYL.) ARNOLD]. However, two other *Pharcidia* species, i. e. *Pharcidia schaereri* (A. MASSAL.) ARNOLD and *Pharcidia rhyparella* (NYL.) ZOPF, are known on *Dacampia hookeri* Vouaux (l.c.). *Pharcidia schaereri* is now known as *Stigmidium schaereri* (A. MASSAL.) TREVIS. (Triebel 1989: 235-236, Roux and Triebel 1994: 505-507), *Pharcidia rhyparella* (NYL.) ZOPF had been included among other synonyms for *Stigmidium dispersum* (LAHM ex KÖRB.) D. HAWKSW. by Clauzade et al. (1989: 89) in accordance with previous Keissler's broad concept of that species [Keissler 1930: 354-362, as *Pharcidia dispersa* (LAHM) G. WINTER].

Stigmidium allogenum was originally described on *Rhizocarpon petraeum*. Specimens under the name *S. allogenum* almost certainly comprise more than one taxon and they should be revised.

Note: Unfortunately, no lichenicolous fungus is present in the below mentioned specimen, designated as *Cercidospora minima*. The host *Gyalideopsis athalloides* has well developed apothecia and several present hyphophores. A part of the specimen may still exist in the Stein's lichen collection in Wroclaw (formerly Breslau), because Novák sent the lichen to Stein for identification (Novák 1888: 56), who discovered and distinguished a new fungus *Cercidospora minima* in that part of the specimen (Novák l.c.).

Distribution: The current distribution is given here for *Stigmidium allogenum* in the broad sense of Keissler (1930) followed by Clauzade et al. 1989: 89).

EUROPE: Great Britain (Hawksworth 1975: 201; Hawksworth 1983: 13, as "*Arthropyrenia*" *allogena*; Vouaux 1912: 244, as *Pharcidia allogena*, 1912: 245, as *P. innatula*).

According to Hafellner (1996: 8), a previous record of *Pharcidia allogena* from Morocco (Werner 1935: 277) belongs to *Stigmidium psorae*.

Specimen examined: CZECH REPUBLIC: Eastern Bohemia, Distr. Havlíčkův Brod, Perknov near Havlíčkův Brod, MTB 6359; coll. J. Novák (PRM 166579 - Lectotypus of *Gyalideopsis athalloides*).

3. Excluded or poorly known taxa

Abrothallus quercinus VELENOVSKÝ
Monogr. Discom. Bohem. 1: 85 (1934)

Ref. CR: Velenovský (1934: 85).

Note: *Abrothallus quercinus* was described by Velenovský (l.c.) as a lichenicolous fungus. According to our examination, his collection is based on an erroneous identification of a non-lichenized discomycete, very probably *Rhizodiscina lignyota* (FR.) HAFELLNER. The precise identification is imposible for presence of only immature asci.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Mnichovice, MTB 6054; 23.IV.1929, coll. J. Velenovský (PRM 150298 - Holotypus).

Athelia arachnoidea (BERK.) JÜLICH
Willdenowia 7: 53 (1972)

Ref. CR: Jülich (1972: 59).

Host lichens in CR: None.

Among the fertile specimens with basidiomata kept in the PRM herbarium only those non-lichenicolous ones are represented.

Known hosts: *Anaptychia ciliaris, Anaptychia* sp., *Lecanora* cf. *chlarotera, L. conizaeoides, L. expallens, Lepraria incana, Melanelia exasperatula, M. fuliginosa, M. subaurifera, Physcia adscendens, P. tenella, Physconia distorta, Scoliciosporum chlorococcum, Xanthoria parietina.*

Note: Almost certainly, *Athelia arachnoidea* occurs as a lichenicolous fungus in the Czech Republic, however, more attention should be paid to its material collection and further study. For the present, *A. arachnoidea* cannot be included among accepted lichenicolous fungi of the Czech Republic.

Distribution: According to Jülich (1972), *Athelia arachnoidea* is widely distributed, but unfortunately the lichenicolous collections are not mentioned in the literature usually.

EUROPE (lichenicolous reports): Austria (Obermayer 1993: 142, Hafellner and Mauer 1994: 116), Denmark (Alstrup et al. 1988: 26), Denmark: Bornholm (Alstrup 1994: 51), Estonia (Parmasto 1999: 63-66, Jüriado et al. 1999: 14), Germany (Kümmerling 1991: 251, Hauck 1995a: 215), Finland (Vitikainen et al. 1997: 11), Norway (Santesson 1993: 27), Sweden (Arvidsson 1976, Santesson 1993: 27), Luxembourg (Diederich 1986, 1989: 230) and Ukraine (Hawksworth 1992: 99, Kondratyuk et al. 1998b: 26, Kondratyuk 1999: 34).

Non-lichenicolous findings are known from Central Europe, North Africa and N. America: U.S.A. and Canada.

Belonium peltigerae VELENOVSKÝ
Monogr. Discom. Bohem. 1: 180, tab. IV, fig. 17 (1934)

Ref. CR: Velenovský (1934: 180).

Host lichen in CR: *Peltigera canina.*

Note: According to Dr. Svrček (National Museum Prague) who studied several Velenovský's types, and to our observation, none apothecia are present in the holotype specimen PRM 150427.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Hrusice near Mnichovice, on thallus of *Peltigera canina*, MTB 6054; 12.X.1931, coll. J. Velenovský (PRM 150427 - Holotypus).

Cantharellus peltigerae VELENOVSKÝ
Věda Přír. 1: 270 (1920)

Ref. CR: Velenovský (1920: 270, 1922: 911).

Notes: *Cantharellus peltigerae* was described as a lichenicolous fungus on *Peltigera* thalli from four localities (Velenovský l.c.). Unfortunately, we saw the only specimen collected ten years later, where the fungus arises from plant debris under the *Peltigera* thallus.

According to Dr. Pouzar (National Museum, Prague), the fungus does not belong to *Cantharellus*. The type specimens could be located in the PRC herbarium and needs to be studied.

Specimen examined: CZECH REPUBLIC: Central Bohemia, LPA Český kras, Roblín hill, on plant debris around *Peltigera* cf. *neckeri*, MTB 6050; XI.1930, coll. A. Pilát (PRM 655552).

Discothecium opegraphae (NOVÁK) VOUAUX
Bull. Soc. mycol. France 29: 59 (1913)

Syn.: *Tichothecium opegraphae* NOVÁK, Arch. Přírod. Výzk. Čech, Praha 7: 56 (1888)

Ref. CR: Novák (1888: 56, 1893: 56), Vouaux (1913: 59), Keissler (1930: 408).

Notes: Vouaux (l.c.) with some hesitation made the combination into the genus *Discothecium* ZOPF only on the basis of the Novák's decription. Vouaux (l.c.) and Keissler (l.c.) repeated only the original diagnosis provided by Novák. The type specimen is not located in PRM herbarium, where some of Novák's collections are hosted.

Specimen (not seen): CZECH REPUBLIC: Distr. Havlíčkův Brod, Frýdnava, ("Leithen near Friedenava"), on *Opegrapha* sp., MTB 6258; coll. J. Novák (?).

Karschia artemisiae VELENOVSKÝ
Monogr. Discom. Bohem. 1: 84 (1934)

Ref. CR: Velenovský (1934: 84), Hafellner (1979: 67).

Notes: Three species from the genus *Karschia*, i. e. *Karschia artemisiae* VELENOVSKÝ, *Karschia juniperi* VELENOVSKÝ and *Karschia minuta* VELENOVSKÝ, which were described by Velenovský (1934) as lichenicolous fungi from the Czech Republic, were already shown by Hafellner (1979: 67) to be a lichen now known as ***Amandinea punctata.***

Only those specimens of *Karschia artemisiae*, which were collected by Velenovský are present in the PRM herbarium. All these specimens belong to *Amandinea punctata.*

Specimens examined: CZECH REPUBLIC: Central Bohemia, Mnichovice, on *Artemisia campestris*, MTB 6054; IV. 1927, coll. J. Velenovský (PRM 147700 - Lectotypus). - Mnichovice, "u křížku", on *Artemisia campestris*, MTB 6054; IV.1929, coll. J. Velenovský (PRM 151270). - Ondřejov, on *Calluna*, MTB 6054; IX.1933, coll. J. Velenovský (PRM 150896). - Zvánovice, on *Rubus fruticosa*, MTB 6054; IV.1929, coll. J. Velenovský (PRM 150894).

Karschia juniperi VELENOVSKÝ
Monogr. Discom. Bohem. 1: 84 (1934)

Ref. CR: Velenovský (1934: 84), Hafellner (1979: 67).

Note: The fungus belongs to the lichen ***Amandinea punctata.*** The name is treated by Hafellner (l.c.) as a synonym to this lichen.

Specimens examined (all on *Juniperus communis*): CZECH REPUBLIC: Central Bohemia, Mnichovice, Myšlín, MTB 6054; III.1928, coll. J. Velenovský (PRM 147708 - Lectotypus). - Mnichovice, Plecháč hill, MTB 6054; VI.1928, coll. J. Velenovský (PRM 151320). - Mnichovice, MTB 6054; XI.1933, coll. J. Velenovský (PRM 151308). - Mnichovice, MTB 6054; IX.1933, coll. J. Velenovský (PRM 812402). - Zvánovice, MTB 6054; 25.IV.1929, coll. J. Velenovský (PRM 150895). - Božkov, MTB 6054; XII.1930, coll. J. Velenovský (PRM 151313). - Ibid.: 14.XII.1931, coll. J. Velenovský (PRM 151322).

Karschia lignyota (FR.) SACC.
Syll. Fung. 8: 779 (1889)

Ref. CR: Velenovský (1934: 83), Hafellner (1979: 196, 198, as *Rhizodiscina lignyota*).

Note: According to Hafellner (l.c.), this non-lichenized fungus, treated by Velenovský (l.c) as a lichenicolous finding from the Czech Republic, does not belong to the genus *Karschia*. Hafellner (l.c.) established a new genus *Rhizodiscina* HAFELLNER for this fungus and placed it there as ***Rhizodiscina lignyota*** (FR.) HAFELLNER (Hafellner 1979: 195).

Specimen examined: CZECH REPUBLIC: Central Bohemia, Hubáčkov, on *Frangula alnus*, VI.1932, coll. J. Velenovský (PRM 151299).

Karschia minuta VELENOVSKÝ
Monogr. Discom. Bohem. 1: 84, tab. II, fig. 9 (1934)

Ref. CR: Velenovský (1934: 84), Hafellner (1979: 67).

Note: The fungus belongs to the lichen ***Amandinea punctata***. The name is treated by Hafellner (l.c.) as a synonym of this lichen.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Mnichovice, Třemblaty, on *Quercus*, MTB 6054; 17.I.1930, coll. J. Velenovský (PRM 151311 - Holotypus).

Karschia myriocarpa (DC.) SACC. et TRAVERSO
Syll. Fung. 19: 994 (1910)

Ref. CR: Velenovský (1934: 84), Hafellner (1979: 68).

Note: The fungus belongs to the lichen ***Amandinea punctata***. The name is treated by Hafellner (l.c.) as a synonym of this lichen.

Specimens examined: All the following specimens belong to *Amandinea punctata*.
CZECH REPUBLIC: Central Bohemia, Hrusice near Mnichovice, on *Picea abies*, MTB 6054; IX.1933, coll. J. Velenovský (PRM 151273, rev. J. Hafellner). - Mnichovice, Plecháč hill, on *Pinus sylvestris*, MTB 6054; IX.1933, coll. J. Velenovský (PRM 151302, 151307, rev. J. Hafellner). - Mnichovice, on exposed roots of *Pinus sylvestris*, MTB 6054; IX.1933, coll. J. Velenovský (PRM 812401). - Mnichovice, on root of *Pinus sylvestris*, MTB 6054; 24.II.1930, coll. J. Velenovský (PRM 151328, rev. J. Hafellner). - Hubáčkov, on roots of *Pinus sylvestris*, 6.II.1930, coll. J. Velenovský (PRM 151331, rev. J. Hafellner). - Mnichovice, "Kožený vrch" hill, on *Picea abies*, MTB 6054; X.1933, coll. J. Velenovský (PRM 151303, rev. J. Hafellner). - Mirošovice, on exposed roots of *Picea abies*, MTB 6054; II.1929, coll. J. Velenovský (PRM 151312, rev. J. Hafellner). - Zvánovice, on *Pinus sylvestris*, MTB 6054; IV.1934, coll. J. Velenovský (PRM 150917, rev. J. Hafellner).

Microthelia ploseliana STEIN
Kryptog.-Fl. Schlesien 2(2): 331 (1879)

Ref. CR: Stein (1879: 331).
All following reports are referred to Stein's finding: Sydow (1887: 270), Lettau (1912: 103) and Keissler (1936: 55).

Notes: Kovář (1910: 21) noted that he failed to find this species in a locality from which the species was reported several times.

Type specimen of *Microthelia ploseliana* was examined by Keissler (1936: 55) and according to him, it is identical with a lichenicolous fungus *Discothecium gemmiferum* (TAYLOR) VOUAUX. Based on the dimensions of ascospores, Hawksworth (1985: 160) suggested that *D. gemmiferum* belonged almost certainly to *Endococcus propinquus* (KÖRB.) D. HAWKSW., which had been neotypified by him before (Hawksworth 1979b: 287).

On the other hand, Triebel (1989) neither included this name among the synonyms for *E. propinquus* nor mentioned this taxon in her treatment dealing with lecideicolous ascomycetes (Triebel 1989).

Since we did not study any specimen collected in the Czech Republic, we can neither confirm its occurrence in the Czech Republic nor if it refers to *E. propinquus* (KÖRB.) D. HAWKSW.

Specimen (not seen): CZECH REPUBLIC: Northern Moravia, Jeseníky Mts., Mt. Červená hora (= Studénková hole), on mica-schist ("auf Glimmerschiefer des Roten Berges im Gesenke"), MTB 5868; w. date, coll. B. Stein (?WRSL).

Microthelia micula FW. ex KÖRB.
Syst. Lich. Germ.: 373 (1855) (nom. illegit.)

Ref. CR: Novák (1888: 63, 1893: 64), Kovář (1906: 66), Servít (1910: 7), Anders (1922: 272), Vězda (1998: 100).
Vězda (l. c.) only mentioned the old record of Servít.

Note: The species is not a lichenicolous fungus. According to Hawksworth (1985: 157), the name is a synonym for the lichen now known as ***Anisomeridium polypori*** (ELLIS et EVERH.) M. E. BARR [syn. *Anisomeridium biforme* (BORRER) R. C. HARRIS].

Microthelia scabrida LAHM
Parerga Lich.: 399 (1865)

Ref. CR: Kovář (1906: 66).

Note: According to Hawksworth (1979b: 289, 1985: 164), who studied holotype of *Microthelia scabrida* LAHM, the name is a synonym of *Endococcus stigma* (KÖRB.) STIZENB., that is a fungus occuring on several *Acarospora* species (see above, p. 86). Unfortunately, neither Hawskworth nor originally Körber (1865) have indicated any host. No host is also indicated by Kovář (l.c.).

Specimen (not seen): CZECH REPUBLIC: Western Moravia, Distr. Žďár n. Sázavou, near the village of Fryšava below Mt. Žákova hora, on serpentine stone by the Medlov lake, MTB 6362; w. date, coll. F. Kovář (?OLM).

Mycobacidia atra VELENOVSKÝ
Monogr. Discom. Bohem. 1: 400 (1934)

Ref. CR: Velenovský (1934: 400).

Note: The fungus was erroneously described for the lichen ***Scoliciosporum chlorococcum***. The name *Mycobacidia atra* VELENOVSKÝ is a later synonym to this lichen.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Menčice near Mnichovice, on dry twig of *Rubus fruticosa*, MTB 6054, IV.1924, coll. J. Velenovský (PRM 152313 - Holotypus).

Mycobilimbia picea VELENOVSKÝ
Monogr. Discom. Bohem. 1: 78 (1934)

Ref. CR: Velenovský (1934: 78).

Note: The fungus was erroneously described for the lichen ***Scoliciosporum chlorococcum***. The name *Mycobilimbia picea* VELENOVSKÝ is a later synonym to this lichen.

On the small twig is except this lichen also present *Lecanora chlarotera* and *Hypogymnia physodes* with lichenicolous fungus *Lichenoconium erodens*.

Specimen examined: CZECH REPUBLIC: Central Bohemia, near Mnichovice, Hrusice, on roots of *Picea abies*, MTB 6054; 24.IV.1929, coll. J. Velenovský (PRM 150029 - Holotypus).

Mycobilimbia picea var. *juniperina* VELENOVSKÝ
Monogr. Discom. Bohem. 1: 78 (1934)

Ref. CR.: Velenovský (1934: 78).

Notes: The fungus was erroneously described for the lichen ***Scoliciosporum chlorococcum***. The name *Mycobilimbia picea* var. *juniperina* VELENOVSKÝ is a later synonym to this lichen.

Specimen examined: CZECH REPUBLIC: Central Bohemia, near Mnichovice, Božkov, on crustose lichen, on trunk of *Juniperus*, MTB 6054; 16.III.1928, coll. J. Velenovský (PRM 824938 - Holotypus).

Nesolechia sarothamni VELENOVSKÝ
Monogr. Discom. Bohem. 1: 400 (1934)

Ref. CR: Velenovský (1934: 400).

Note: No fungus was found in the type specimen, although two lichens on wood were found there, i. e. *Lecanora saligna* (SCHRAD.) ZAHLBR. and *Micarea denigrata* (FR.) HEDL. The original diagnosis fits with characters of *Micarea denigrata*. Therefore the name *Nesolechia sarothamni* VELENOVSKÝ is a later synonym of that lichen.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Menčice near Mnichovice, on *Sarothamnus*, MTB 6054, 6.IV.1934, coll. J. Velenovský (PRM 152229 - Holotypus).

Polycoccum marmoratum (KREMPELH.) D. HAWKSW.
Lichenologist 12: 107 (1980)

Syn.: *Microthelia marmorata* (KREMPELH.) HEPP, Parerga Lich.: 398 (1865)

Ref. CR: As *Microthelia marmorata*: Lettau (1912: 103), Lindau (1913: 23), Servít (1930: 16), Servít and Klement (1933: 4), Kuťák (1952: 110).

Sel. lit.: Swinscow (1966: 234-235, fig. 2, as *Microthelia marmorata*).

Host lichen in CR: No host is indicated in the Czech references. No host was observed in the so far examined specimens.

Known hosts: *Clauzadea monticola, Polyblastia amota, Thelidium incavatum, Verrucaria calciseda.*

Note: Unfortunately, only several immature ascomata are present in both examined specimens. The identification is uncertain as mature spores for confirmation have not been found.

Specimens (not seen): CZECH REPUBLIC: Central Bohemia, Distr. Beroun, near Sv. Jan pod Skalou, on a calcareous rock, MTB 6050; w. date, coll. M. Servít (PRM-not found).

Eastern Bohemia, Krkonoše Mts., Distr. Trutnov, Pec pod Sněžkou, in the Obří důl valley, near former mines, on primary calcite, ca. 1020 m, MTB 5260; ?1951, coll. V. Kuťák (PRM-not found).

Specimens examined: CZECH REPUBLIC: Western Bohemia, Distr. Chomutov, foreland of the Krušné hory Mts. ("Vorland des Erzgebirges"), Čermníky near Chomutov, ("beim Tschermischer Steinbruch"), on calcareous shale, 240 m, MTB 5546; coll. O. Klement (PRM 759356). - Distr. Chomutov, Čermníky ("Kalkschiefer bei Tschermich"), 280 m, MTB 5546; 1931, coll. O. Klement, det. M. Servit (PRM 760480).

Roburnia karschioides VELENOVSKÝ
Novit. Mycol. Noviss.: 101 (1947)

Ref. CR: Velenovský (1947: 101).

Note: Unfortunately, we found only the apothecia of ***Bacidia globulosa*** (FLÖRKE) HAFELLNER et V. WIRTH in this specimen. The fungus was probably erroneously described for that lichen.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Myšlín near Říčany, on *Quercus robur*, on crustose lichens, MTB 6054; 10.IV.1941, coll. J. Velenovský (PRM 152931, Lectotypus, seen!).

Sporocadus lichenicola CORDA
Icones Fung. 3: 24 (1839)

Ref. CR: Corda (1839: 24), Hughes (1958: 810), Sutton (1975: 136), Hawksworth (1981a: 87).

Note: This fungus was originally described by Corda as a lichenicolous species associated with some unidentified crustose lichen. It has already been reported several times, that this fungus is non-lichenized and non-lichenicolous (Hughes 1958: 810, Sutton 1975: 136, Hawksworth 1980b: 378, 1981: 87) and that it belongs to the genus *Seimatosporium* CORDA (Shoemaker and Müller 1964: 405, Sutton 1975: 136, 1980: 289) as a species ***Seimatosporium lichenicola*** (CORDA) SHOEM. et E. MÜLL.

Observation: The type specimen is based on a single *Rosa* stem piece with this non-lichenicolous fungus only.

Specimen examined: CZECH REPUBLIC: Central Bohemia, Praha, Fürstl. Lobkowitzischen Garten, on *Rosa* sp., MTB 5952; 1838, coll. A. J. C. Corda (PRM 155664 - Holotypus).

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Host Index of CR

Acarospora fuscata
Buellia badia
Marchandiomyces corallinus
Polycoccum microsticticum
Sarcopyrenia cylindrospora
Stigmidium fuscatae
Acarospora cf. nitrophila
Endococcus stigma
Acarospora moraviae
Stigmidium fuscatae
Acarospora nithrophila var. praeruptarum
Muellerella pygmaea var. *athallina*
Amandinea punctata
Taeniolella delicata
Arthonia lapidicola
Muellerella pygmaea var. *athallina*
Arthrorhaphis grisea
Thelocarpon epithallinum
Aspicilia caesiocinerea
Buellia badia
Lichenostigma elongata
Aspicilia calcarea
Opegrapha parasitica
Aspicilia cf. calcarea
Muellerella pygmaea var. *athallina*
Aspicilia cinerea
Cercidospora solearispora
Marchandiomyces corallinus
Muellerella pygmaea var. *athallina*
Aspicilia contorta
Cercidospora solearispora
Muellerella pygmaea var. *athallina*
Sarcopyrenia cylindrospora
Aspicilia sp.
Cercidospora solearispora
Endococcus verrucosus
Marchandiomyces corallinus
Muellerella pygmaea var. *athallina*
Bacidia rubella
Muellerella hospitans
Baeomyces rufus
Arthrorhaphis grisea
Dactylospora athallina
Epilichen scabrosus
Sphaerellothecium coniodes
Thelocarpon epithallinum
Thelocarpon lichenicola
Bellemerea diamarta
Sclerococcum verrucisporum
Bryoria capillaris
Lichenoconium usneae
Buellia aethalea
Sclerococcum leuckertii
Caloplaca flavovirescens
Muellerella lichenicola
Caloplaca teicholyta
Arthonia pragensis
Muellerella pygmaea var. *athallina*
Caloplaca variabilis
Muellerella pygmaea var. *athallina*

Candelariella aurella
Trimmatostroma lichenicola
Candelariella vitellina
Carbonea vitellinaria
Marchandiomyces corallinus
Sarcopyrenia cylindrospora
Cetraria islandica
Lichenoconium erodens
Chaenotheca brunneola
Chaenothecopsis pusilla
Chaenothecopsis pusiola
Chaenotheca chrysocephala
Chaenothecopsis consociata
Chaenothecopsis pusiola
Chaenotheca sp.
Chaenothecopsis viridireagens
Chaenotheca sphaerocephala
Microcalicium arenarium
Chaenotheca trichialis
Chaenothecopsis epithallina
Chaenotheca xyloxena
Chaenothecopsis nigra
Cladonia arbuscula
Taeniolella cladinicola
Cladonia chlorophaea
Arthrorhaphis aeruginosa
Epicladonia stenospora
Taeniolella beschiana
Cladonia coniocraea
Arthrorhaphis aeruginosa
Cladonia cornuta
Epicladonia sandstedei
Cladonia digitata
Chaenothecopsis parasitaster
Phaeopyxis punctum
Cladonia fimbriata
Arthrorhaphis aeruginosa
Cladonia furcata
Lichenoconium pyxidatae
Cladonia pocillum
Epicladonia sandstedei
Lichenoconium erodens
Lichenoconium pyxidatae
Roselliniella cladoniae
Cladonia polydactyla
Phaeopyxis punctum
Cladonia pyxidata
Arthrorhaphis aeruginosa
Lichenoconium erodens
Lichenoconium pyxidatae
Cladonia rangiferina
Taeniolella cladinicola
Cladonia sp.
Arthrorhaphis aeruginosa
Lichenoconium erodens
Cladonia subulata
Lichenoconium pyxidatae
Collema auriforme
Didymellopsis collematum
Dibaeis baeomyces
Arthrorhaphis muddii

Diploschistes scruposus
Arborillus llimonae
Karschia talcophila
Lichenoconium usneae
Lichenostigma rugosa
Marchandiomyces corallinus
Sphinctrina leucopoda
Evernia prunastri
Lichenoconium erodens
Lichenostigma maureri
Phaeosporobolus usneae
Flavoparmelia caperata
Lichenoconium erodens
Phaeosporobolus usneae
Gyalideopsis athalloides
Stigmidium allogenum
?Haematomma ochroleucum
Chaenothecopsis subparoica
Hypocenomyce scalaris
Clypeococcum hypocenomycis
Cornutispora lichenicola
Lichenoconium erodens
Hypogymnia physodes
Abrothallus prodiens
Athelia epiphylla
Lichenoconium erodens
Phoma cytospora
Tremella hypogymniae
Hypogymnia tubulosa
Nesolechia oxyspora
Ionaspis odora
Arthopyrenia lomnitzensis
Koerberiella wimmeriana
Sagediopsis aquatica
Lasallia pustulata
Marchandiomyces corallinus
Lecania cyrtella
Lecania cyrtella
Lecanora cf. albella
Lichenoconium lecanorae
Lecanora campestris
Muellerella pygmaea var. *athallina*
Lecanora carpinea
Lichenoconium lecanorae
Sphaerellothecium propinquellum
Unguiculariopsis thallophila
Lecanora chlarotera
Lichenoconium lecanorae
Stigmidium congestum
Vouauxiella lichenicola
Lecanora cf. chlarotera
Lichenoconium erodens
Lecanora conizaeoides
Athelia epiphylla
Cornutispora lichenicola
Lichenoconium erodens
Lecanora dispersa s. l.
Arthonia galactinaria
Trimmatostroma lichenicola
Lecanora garovaglii
Cercidospora macrospora
Lecanora intricata
Muellerella pygmaea var. *athallina*
Lecanora muralis
Cercidospora macrospora
Marchandiomyces corallinus
Muellerella pygmaea var. *athallina*
Sarcopyrenia cylindrospora
Lecanora polytropa
Cercidospora epipolytropa
Lecanora pseudistera
Zwackhiomyces sphinctrinoides
Lecanora rupicola
Lichenoconium erodens
Arthonia varians
Lecanora saligna
Lichenodiplis lecanorae
Lecanora serpentinicola
Dactylospora rimulicola
Lecanora subcarnea
Arthonia varians
Lecanora varia
Arthonia apotheciorum subsp. *caerulescens*
Lichenoconium lecanorae
Lecidea fuscoatra
Marchandiomyces corallinus
Muellerella pygmaea var. *pygmaea*
Polycoccum kerneri
Sarcopyrenia cylindrospora
Lecidea sp.
Phaeospora parasitica
Lecidea tessellata
Muellerella pygmaea var. *pygmaea*
Lecidella achristotera
Licea parasitica
Lecidella carpathica
Endococcus sp.
Muellerella pygmaea var. *athallina*
Lecidella stigmatea
Bispora christiansenii
Lepraria sp.
Buellia badia
Leptogium lichenoides var. pulvinatum
Merismatium nigritellum
Leptogium sp.
Obryzum corniculatum
Lobaria pulmonaria
Plectocarpon lichenum
Dactylospora lobariella
Lobothallia radiosa
Lichenostigma elongata
Muellerella pygmaea var. *athallina*
Melanelia fuliginosa
Abrothallus bertianus
Melanelia glabra
Lichenodiplis lecanorae
Micarea prasina
Athelia epiphylla
Micarea sp.
Merismatium nigritellum
Mycobilimbia sabuletorum
Stigmidium mycobilimbiae

Mycoblastus fucatus
Athelia epiphylla
Neofuscelia loxodes
Marchandiomyces corallinus
Neofuscelia pulla
Lichenoconium usneae
Neofuscelia verruculifera
Marchandiomyces corallinus
Clypeococcum cladonema
Lichenoconium usneae
Stigmidium neofusceliae
Ochrolechia lactea
Dactylospora parasitica
Rosellinopsis groedensis
Sphinctrina leucopoda
Stigmidium eucline
Ochrolechia pallescens
Lichenoconium erodens
Ochrolechia turneri
Lichenodiplis lecanorae
Omphalina hudsoniana
Thelocarpon epibolum
Parmelia omphalodes
Lichenoconium erodens
Parmelia saxatilis
Cornutispora lichenicola
Lichenoconium erodens
Lichenoconium lecanorae
Marchandiomyces corallinus
Parmelia sulcata
Lichenoconium erodens
Marchandiomyces corallinus
Parmeliopsis ambigua
Cornutispora lichenicola
Spirographa fusisporella
Peltigera aphtosa
Thelocarpon sp.
Peltigera canina
Karsteniomyces peltigerae
Peltigera didactyla
Illosporium carneum
Karsteniomyces
Scutula dedicata
Vezdaea acicularis
Vezdaea retigera
Peltigera horizontalis
Nectriopsis lecanodes
Peltigera praetextata
Lichenopeltella peltigericola
Scutula epiblastematica
Peltigera rufescens
Capronia peltigerae
Illosporium carneum
Karsteniomyces peltigerae
Pronectria robergei
Scutula miliaris
Peltigera sp.
Illosporium carneum
Refractohilum peltigerae
Thelocarpon epibolum
Vezdaea rheocarpa

Peltula euploca
Endococcus pseudocarpus
Pertusatia albescens
Phaeosporobolus alpinus
Sclerococcum epiphytorum
Pertusaria aspergilla
Dactylospora saxatilis var. *saxatilis*
Pertusaria corallina
Sclerococcum sphaerale
Pertusaria coronata
Cornutispora triangularis
Pertusaria leioplaca
Cornutispora lichenicola
Lichenoconium erodens
Pertusaria pertusa
Cyphelium sessile
Pertusaria sp.
Dactylospora saxatilis var. *saxatilis*
Sphinctrina anglica
Sphinctrina tubaeformis
Sphinctrina turbinata
Cyphelium sessile
Phaeophyscia nigricans
Arthonia phaeophysciae
Phaeophyscia orbicularis
Arthonia phaeophysciae
Buelliella physciicola
Licea parasitica
Lichenochora obscuroides
Phaeophyscia sciastra
Buelliella physciicola
Phaeophyscia sciastra
Buelliella physciicola
Phaeophyscia sp.
Buelliella physciicola
Physcia aipolia
Hobsonia christiansenii
Lichenoconium xanthoriae
Physcia caesia
Polycoccum pulvinatum
Sarcopyrenia cylindrospora
Physcia dimidiata
Arthonia epiphyscia
Physcia dubia
Polycoccum pulvinatum
Physcia tenella
Lichenoconium xanthoriae
Physcia wainioi
Polycoccum pulvinatum
Stigmidium pumilum
Physconia grisea
Licea parasitica
Physconia perisidiosa
Licea parasitica
Platismatia glauca
Abrothallus cetrariae
Cornutispora lichenicola
Lichenoconium erodens
Marchandiomyces corallinus
Vouauxiomyces santessonii
Porpidia crustulata
Arthonia almquistii
Endococcus propinquus

Porpidia glaucophaea
Cecidonia xenophana
Dactylospora purpurascens
Sagediopsis barbara
Porpidia soredizodes
Endococcus propinquus
Porpidia superba
Muellerella pygmaea var. *athallina*
Porpidia tuberculosa
Arthonia almquistii
Endococcus propinquus
Protoblastenia calva
Muellerella pygmaea var. *athallina*
Protoblastenia rupestris
Muellerella pygmaea var. *athallina*
Zwackhiomyces dispersus
Protothenella sphinctrinoides
Dactylospora urceolata
Pseudevernia furfuracea
Lichenoconium erodens
Lichenostigma maureri
Phaeosporobolus usneae
Psilolechia lucida
Microcalicium arenarium
Ramallina pollinaria
Lichenoconium usneae
Lichenostigma maureri
Phaeosporobolus usneae
Rhizocarpon disporum
Endococcus fusiger
Endococcus rugulosus s. l.
Marchandiomyces corallinus
Muellerella pygmaea var. ventosicola
Rhizocarpon distinctum
Endococcus rugulosus s. l.
Muellerella pygmaea var. *ventosicola*
Rhizocarpon geographicum
Endococcus macrosporus
Marchandiomyces corallinus
Muellerella pygmaea var. *ventosicola*
Sarcopyrenia cylindrospora
Rhizocarpon lavatum
Endococcus fusiger
Muellerella pygmaea var. *ventosicola*
Rhizocarpon lecanorinum
Endococcus macrosporus
Rhizocarpon obscuratum
Muellerella pygmaea var. *ventosicola*
Rhizocarpon petraeum
Phaeospora rimosicola
Rhizocarpon sp.
Muellerella pygmaea var. *ventosicola*
Rhizocarpon umbilicatum
Phaeospora parasitica
Scoliciosporum chlorococcum
Athelia epiphylla
Strangospora pinicola
Lichenodiplis lecanorae
Thelidium aeneovinosum
Epibryon parvipunctum
Thelocarpon laureri
Lecidea variegatula
Toninia sedifolia
Muellerella lichenicola
Trapelia coarctata
Roselliniella microthelia
Trapelia obtegens
Muellerella pygmaea var. *athallina*
Roselliniella microthelia
Trapelia placodioides
Polycoccum minutulum
Trapelia sp.
Roselliniella microthelia
Tuckermannopsis chlorophylla
Lichenoconium erodens
Umbilicaria hirsuta
Marchandiomyces corallinus
Usnea hirta
Phaeosporobolus usneae
Verrucaria calciseda
Opegrapha rupestris
Verrucaria nigrescens
Endococcus rugulosus s. str.
Verrucaria sp.
Opegrapha rupestris
Thelocarpon epibolum
Xanthoparmelia conspersa
Abrothallus caerulescens
Abrothallus sp.
Cornutispora sp.
Lichenoconium usneae
Lichenostigma cosmopolites
Marchandiomyces corallinus
Sclerococcum sp.
Stigmidium xanthoparmeliarum
Vouauxiomyces - anamorph of *Abrothallus caerulescens.*
Xanthoparmelia somloënsis
Abrothallus caerulescens
Lichenoconium usneae
Lichenostigma cosmopolites
Marchandiomyces corallinus
Stigmidium xanthoparmeliarum
Vouauxiomyces - anamorph of *Abrothallus caerulescens.*
Xanthoria parietina
Lichenoconium xanthoriae
Xanthoriicola physciae
Xanthoria polycarpa
Lichenoconium xanthoriae
unidentified sterile crustose lichen
Arthonia pragensis
Chaenothecopsis vainioana
free-living algal crusts
Chaenothecopsis pusilla
unidentified crusts of calicioid lichens
Microcalicium disseminatum
unidentified sterile crust of Lepraria-type
Reichlingia leopoldi

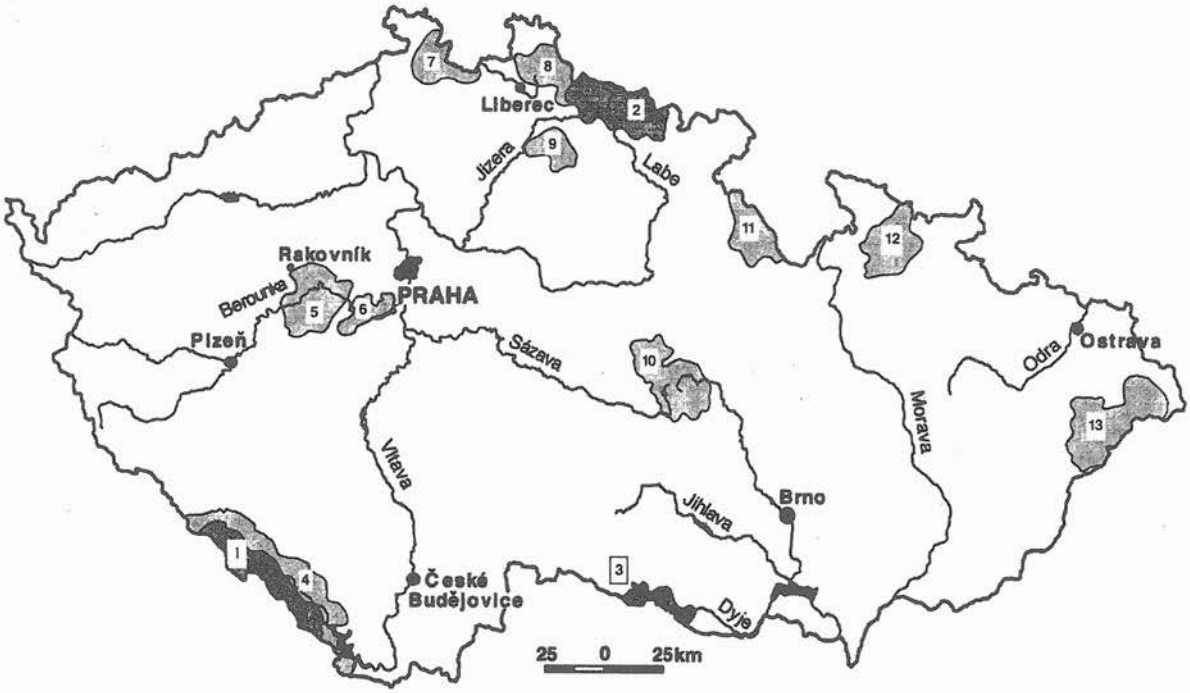
Host Index

The host index is given in alphabetical order according to species epithets.

Fungus Index

The index is given in alphabetical order according to species epithets. Bold print refers to annotated genera and accepted taxa and to their main entries.

Fig. 1. Location of the main areas of study.



1. NP Šumava
2. NP Krkonoše
3. NP Podyjí
4. LPA Šumava
5. LPA Křivoklátsko
6. LPA Český Kras
7. LPA Lužické hory
8. LPA Jizerské hory
9. LPA Český ráj
10. LPA Železné hory
11. LPA Orlické hory
12. LPA Jeseníky
13. LPA Beskydy

Explanations to the plates

PLATE 1

Abrothallus prodiens (Arnold: Kryptogamae exsiccatae 957, PRM 5988, on *Hypogymnia physodes*).
1. Vertical section of ascoma.
2. Hyaline hymenium and brown hypothecium.
3. Detail of hymenium with asci and ascospores.
Abrothallus caerulescens (PRM 890783, on *Xanthoparmelia somloënsis*).
4. Verruculose spores.
Arborillus llimonae (PRM 892661, on *Diploschistes scruposus*).
5. Apical part of synnema with penicillate conidiogenous cells showing blastic-percurrent conidium ontogeny.
6. Verruculose conidia.
Scale bars Fig. 1. = 100 µm. Fig. 2. = 50 µm. Figs 3, 4 = 20 µm, Fig. 5 = 20 µm. Fig. 6 = 10 µm. Figs 2 - 6 taken with Nomarski Differential Interference Contrast. All preparations in water.

PLATE 2

Bispora christiansenii (PRM, on *Candelariella aurella*).
1. Vertical section of ascoma.
Cornutispora lichenicola (PRM 758282, on *Pertusaria leioplaca*).
2. Conidia.
Cornutispora triangularis (PRM 892178, on *Pertusaria coronata*).
3. Conidia.
Dactylospora saxatilis (PRM 889659, on *Pertusaria leucosora*).
4. Vertical section of ascoma.
5. Hymenium, asci, ascospores.
Endococcus sp. (PRM 758580, on *Lecidella carpathica*).
6. Young ascus. Fig. 7. Spores.
Scale bars Fig. 1 = 50 µm. Fig. 2, 3, 5, 6, 7 = 20 µm. Fig. 4. = 100 µm. Fig. 5 = 20 µm. Figs 2, 3, 6 and 7 taken with Nomarski Differential Interference Contrast. All preparations in water.

PLATE 3

Endococcus fusiger (hb. Vězda, on *Rhizocarpon lavatum*).
1. Young and mature asci.
2. Periphysoides, asci and ascospores.
Endococcus rugulosus (PRM 889662, on *Verrucaria nigrescens*).
3. Immature asci and mature ascospores.
4. Lower part of ascoma wall, verruculose spores.
Endococcus macrosporus (PRM 892529, on *Rhizocarpon geographicum*).
5. Narrow fusiform ascospores.
Scale bars Fig. 1 = 50 µm. Figs 2 - 5 = 20 µm. Figs 1 - 4 taken with Nomarski Differential Interference Contrast. All preparations in water.

PLATE 4

Endococcus macrosporus (PRM 892529, on *Rhizocarpon geographicum*).
1. Vertical section of ascoma showing dextrinoid reaction of endoplasma in asci.
2. Ascospores.
Sclerococcum verrucisporum (hb. Vězda, on *Bellemerea diamartha*).
3. Conidia.
Lichenoconium pyxidatae (PRM 758327, on *Cladonia subulata*).
4. Conidia.
Muellerella pygmaea var. *ventosicola* (PRM 890816, on *Rhizocarpon distinctum*).
5. Three stages of development of asci.
Scale bars Fig. 1 = 100 µm. Fig. 2 = 20 µm. Fig. 3. = 10 µm. Fig. 5 = 20 µm. Fig 1. Preparation in Ilugol solution. Figs 2, 3, 4, 5. Preparation in water. Figs 2, 3, 4, 5 taken with Nomarski Differential Interference Contrast.

PLATE 5

Roselliniopsis groedensis (PRM 891186, on *Ochrolechia lactea*).
1. Immature asci and simple interascal filaments.
2. Young and nearly mature asci.
3. Septa arising in ascospores.
4. Mature spores with apical germination pores.
Scale bars Fig. 1 = 50 µm. Figs 2 - 4 = 20 µm. All preparations in water. Figs 1, 3 and 4 taken with Nomarski Differential Interference Contrast.

PLATE 6

Sarcopyrenia cylindrospora (PRM 758531, on *Lecanora muralis*).
1. Vertical section of young ascomata.
2. Two ascospores starting to form septum.
3. Nearly mature ascospores.
Sarcopyrenia gibba var. *gibba* (PRM 633479).
4. Ascospore.
Sarcopyrenia gibba var. *geisleri* (PRM 633478).
5. Ascospores.
Polycoccum minutulum (PRM 892477, on *Trapelia placodioides*).
6. Immature asci. Fig. 7. Immature asci showing apical apparatus of the asci and nearly mature ascospores.
Scale bars Fig. 1 = 100 µm. Figs 2 - 7 = 20 µm. All preparations in water. All figs taken with Nomarski Differential Interference Contrast.

PLATE 7

Sclerococcum sphaerale (PRM 758591, on *Pertusaria corallina*).
1. Vertical section of sporodochium.
2. Conidia.
Scale bars Fig. 1 = 50 µm. Fig. 2 = 20 µm. Both preparations in water. Both figs taken with Nomarski Differential Interference Contrast.

PLATE 8

Vezdaea retigera (PRM 758584, on *Peltigera praetextata*).
1. Goniocysts with short spines.
2. Paraphyses as long as asci entwining individual asci.
3. Asci.
Scale bars Fig. 1 = 10 µm. Figs 2, 3 = 20 µm. All preparations in water. All figs taken with Nomarski Differential Interference Contrast.

Cover drawing: *Sphinctrina leucopoda* NYL., stalked apothecia on *Diploschistes scruposus*; Central Bohemia, Biosphere Reserve Křivoklátsko, Lánská obora game reserve (PRM 892162). Drawing by P. Kocourek.