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## LICHENICOLOUS FUNGI FROM THE GRAND DUCHY OF LUXEMBOURG AND SURROUNDING AREAS

by

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### Summary

Six species of lichenicolous fungi are described as new: *Tremella lichenicola* (on *Mycoblastus sterilis*), *Muellerella triseptata* (on *Buellia griseovirens*), *Skyttea acrocordiae* (on *Acrocordia gemmata*), *Skyttea hawksworthii* (on cf. *Verrucaria* sp.), *Lichenocodium reichlingii* (on *Ramalina fraxinea*) and *Phoma lecanorina* (on *Lecanora expallens*). *Lichenostigma rugosa* has been found lichenized or not, depending on its position on its host. *Lichenocodium lichenicola* has been found for the first time elsewhere than in its type locality. Notes on 29 other species are given.

**Résumé :** *Champignons lichénicoles du Grand-Duché de Luxembourg et des régions limitrophes.*

Six espèces nouvelles de champignons lichénicoles sont décrites : *Tremella lichenicola* (sur *Mycoblastus sterilis*), *Muellerella triseptata* (sur *Buellia griseovirens*), *Skyttea acrocordiae* (sur *Acrocordia gemmata*), *Skyttea hawksworthii* (sur cf. *Verrucaria* sp.), *Lichenocodium reichlingii* (sur *Ramalina fraxinea*) et *Phoma lecanorina* (sur *Lecanora expallens*). *Lichenostigma rugosa* a été observé lichénisé ou non, selon sa position sur son hôte. *Lichenocodium lichenicola* a été trouvé pour la première fois en dehors de sa localité-type. Des notes sur 29 autres espèces sont présentées.

### A. INTRODUCTION

The lichenicolous fungi have hardly been studied by the Luxembourgish botanists. MARCHAND (1826 and 1829), KOLTZ (1897) and FELTGEN

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(1899) have mentioned some 20 species, generally without any indications of localities. SÉRUSIAUX, LAMBINON & MALAISE (1983) have reported *Karschia talcophila* (ACH. ex FLOTOW) KOERBER and *Sphinctrina turbinata* (PERS.) DE NOT. Most of these species are Ascomycetes. MARCHAND (1826 and 1829) is the only Luxembourgish author to mention lichenicolous Deuteromycetes (two species of Hyphomycetes).

In this paper, I refer to 37 lichenicolous fungi collected in the Grand Duchy of Luxembourg and in adjacent areas. The position of each locality in the I.F.F.B. (squares of 16 km<sup>2</sup>) and U.T.M. (squares of 25 km<sup>2</sup>) mapping systems is given. Unless otherwise stated, all collections are preserved in my personal herbarium.

## B. BASIDIOMYCOTINA

### *Athelia arachnoidea* (BERK.) JÜLICH

G. D. OF LUXEMBOURG (GUTLAND) (representative specimen) : SE Beaufort, Hallerbach, L9.11/LA.0520, *Fagus*, on *Lecanora* cf. *chlarotera* NYL., 1984, DIEDERICH 6050.

In his monography of the *Athelieae*, JÜLICH (1972) distinguished four *Athelia* species growing on lichens : *A. alnicola* (BOURD. & GALZ.) JÜLICH, *A. arachnoidea* (BERK.) JÜLICH, *A. epiphylla* PERS. and *A. salicum* PERS.

ERIKSSON & RYVARDEN (1973) pointed out that the *A. epiphylla* complex (including *A. alnicola*, *A. epiphylla* s.s., *A. salicum* and other species) lacks good characteristics for splitting into several taxa. Moreover they were not sure if *A. arachnoidea* could be distinguished from *A. epiphylla* s.l.

ARVIDSSON (1976) showed that the taxonomy of the lichenicolous species in the sense of JÜLICH is unnatural. He proposed to call the algae- and lichen-parasites producing sclerotia *A. arachnoidea*, and to remove all the saprophytic forms (which never form sclerotia) in the *A. epiphylla* group.

In Luxembourg, *A. arachnoidea* is commonly observed growing over epiphytic algae and lichens which are rapidly killed by the parasite. I have found specimens with sclerotia, but never with fructifications.

### *Tremella lichenicola* DIEDERICH sp. nov. (fig. 1)

Basidiomata lichenicola, in thallis *Mycoblasti sterilis* crescentia, pulviniformia vel disciformia, atrobrunnea, tremelloidea, in sicco cornea et

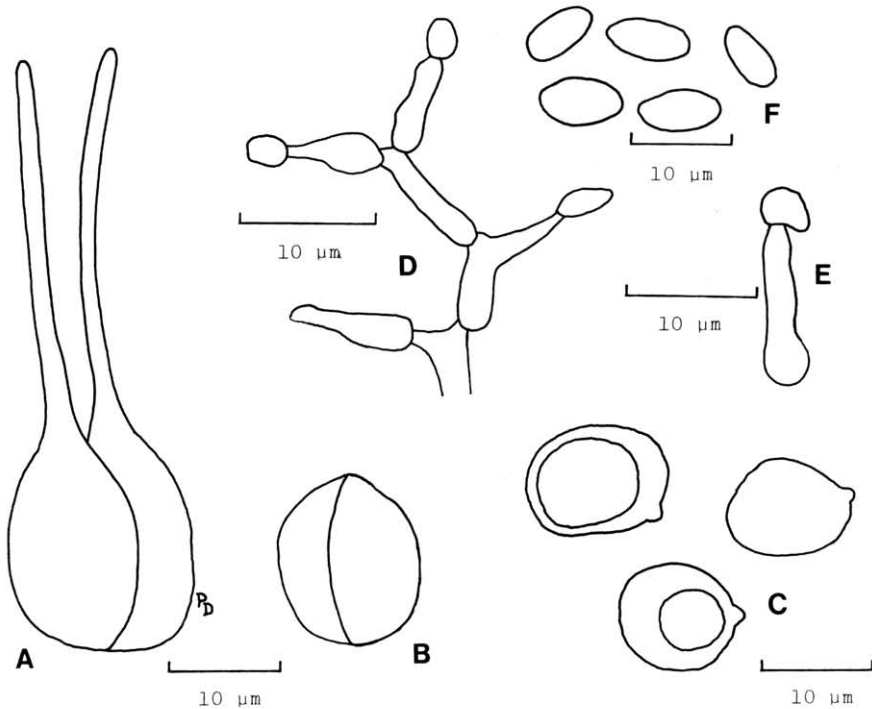


FIG. 1. — *Tremella lichenicola* (LG, holotype) : A, basidium ; B, young basidium ; C, basidiospores ; D-E, conidiogenous cells with young conidia ; F, conidia.

atra, 0,2-0,8 mm diam. ; superficies rugosa. Hyphae in gelatina molli immersae, irregulares, hyalinae vel pallide viridulae, sine fibulis. Conidia ellipsoidea ad ovoidea,  $4-8 \times 2-4 \mu\text{m}$ . Cellulae conidiogenae  $7-12 \times 4-5 \mu\text{m}$ . Basidiae subglobosae,  $16-20 \times 10-15 \mu\text{m}$ , cum 1 longitudinali septo. Sterigmata ad  $50(-70) \mu\text{m}$  longa,  $2-3 \mu\text{m}$  lata. Basidiosporae subglobosae, guttulatae,  $10-18 \times 8-14 \mu\text{m}$ .

Holotypus : Luxemburgum, Gutland, inter Larochette et Meysembourg, in ripa Manzebaach, L8.27/KA.9515, in thallo *Mycoblasti sterilis* COPPINS & JAMES, in cortice *Alni*, 16 V 1985, DIEDERICH 6068 (LG). Isotypi : IMI 300095, herb. DIEDERICH.

Basidiocarps parasymbiotic on *Mycoblastus sterilis*, pulvinate or discoid, dark brown, gelatinous, drying horny and becoming black, 0,2-0,8 mm in diameter ; surface rugose. Internal hyphae immersed in a soft jelly, irregular, hyaline or light greenish, without clamp connexions. Conidia ellipsoid to ovate,  $4-8 \times 2-4 \mu\text{m}$ . Conidiogenous cells  $7-12 \times$

4-5  $\mu\text{m}$ . Basidia subglobose, 16-20  $\times$  10-15  $\mu\text{m}$ , becoming 2-celled by a single longitudinal septum. Sterigmata up to 50(-70)  $\mu\text{m}$  long and 2-3  $\mu\text{m}$  broad. Basidiospores subglobose, with oil drops, 10-18  $\times$  8-14  $\mu\text{m}$ .

*Tremella lichenicola* is easily separated from the other fungicolous species. *T. simplex* JACKS. & MARTIN, the only other *Tremella* species with 2-celled basidia and hyphae lacking clamp connexions, has smaller basidia (10-15  $\times$  10-12.5  $\mu\text{m}$ ), spores (7.5-10  $\times$  7.5-8.8  $\mu\text{m}$ ) and conidia (3.5-5.5  $\times$  3-3.8  $\mu\text{m}$ ) and has amber-coloured basidiocarps. The diagnostic features for the distinction of *T. lichenicola* from related species (JÜLICH, 1984 : 424-430 ; MARTIN, 1952 : 70-78 ; TORKELSEN, 1968) are given in table 1.

This new species was mentioned for the first time by COPPINS & JAMES (1979 : 161) (short description and illustration of basidia and conidia) from Northern Britain, Norway and Sweden ; it has also been recorded from Belgium (SÉRUSIAUX & ROSE, 1984 : 95) and Germany (WIRTH, 1981 : 14), but was left unnamed by these authors. It is very frequent in the area of *Mycoblastus sterilis* and occurs exclusively on this lichen species.

Other collections :

G. D. OF LUXEMBOURG (OESLING) : Heinerscheid, Casselslay, J8.45/KA.9045, *Carpinus*, 1983, DIEDERICH 3972, 3973.

G. D. OF LUXEMBOURG (GUTLAND) : W Steinfort, L8.51/GR.0505, *Alnus*, 1984, DIEDERICH 5120 ; W Hunsdorf, Zapp, L8.45/KA.9005, *Fagus*, 1984, DIEDERICH 5375 ; Blaschette, Bëddelboesch, L8.46/KA.9505, *Carpinus*, 1983, DIEDERICH 5448 ; Berdorf, Vugelsmillen, L9.11/LA.0520, *Alnus*, 1984, DIEDERICH 5500 & SÉRUSIAUX 6525 (LG) ; Berdorf, Zigzagschloeff, K9.51/LA.0520, *Pinus*, 1984, DIEDERICH 5643 & SÉRUSIAUX ; Berdorf, Binzelschloeff, L9.11/LA.0520, *Fagus*, 1984, DIEDERICH 5702 & SÉRUSIAUX.

BELGIUM (DISTR. MOS.) : Virelles, J4.45/ER.9545, *Alnus*, 1984, SÉRUSIAUX 6147 (LG).

BELGIUM (DISTR. ARD.) : SE Herbeumont, L6.26/FR.6015, *Fagus*, 1985, DIEDERICH 6109 ; Elsenborn, G8.15/KB.9595, *Fagus*, 1985, SÉRUSIAUX 6761 (LG) ; Habay-la-Neuve, L7.25/FR.9010, *Carpinus*, 1983, SÉRUSIAUX 6112 (LG) ; Halma, J6.43/FR.5045, *Fraxinus*, 1984, SÉRUSIAUX 6180 (LG) ; Francorchamps, G8.32/GR.1590, *Betula*, 1984, SÉRUSIAUX 6814/5 (LG).

BELGIUM (DISTR. LORR.) : SE Buzenol, M7.14/FR.8500, *Fagus*, 1984, DIEDERICH 5555, SÉRUSIAUX, ROSE & CRAM.

GERMANY : S Manderscheid, \*/LA.5045, *Alnus*, 1984, DIEDERICH 5529, SÉRUSIAUX 6424 & 6432 (LG), ROSE & CRAM ; N Bollendorf, K9.41/LA.0525, *Fagus*, 1984, DIEDERICH 5670 & SÉRUSIAUX 6600 (LG) ; Orscholz, Wellesbachtal, M9.45/LV.2085, *Fagus*, 1984, DIEDERICH 5783 & JOHN.

TABLE 1  
Diagnostic features for the distinction of *Tremella lichenicola* from related species

	<i>T. lichenicola</i>	<i>T. simplex</i>	<i>T. mycophaga</i>	<i>T. indecorata</i>	<i>T. versicolor</i>
Basidiocarp	dark brown to black 0.2-0.8 mm	amber-coloured 0.3-1.5 mm	amber-coloured 0.3-1.5 mm	hyaline to greyish-brown 2-3 mm or larger	orange to brown 2-3 mm
Host	<i>Mycoblastus sterilis</i>	<i>Aleurodiscus amorphus</i>	<i>Aleurodiscus amorphus</i>	<i>Diatripe bullata</i>	<i>Aleurodiscus lividocoeniteus</i> <i>Pentophora nuda</i>
Clamp connexions	absent	absent	present	present	present
Conidia	4-8 × 2-4 µm	3.5-5.5 × 3-3.8 µm	4-7 × 2.5-4 µm	2.4-3.6 × 1.2-1.8 µm	2.5-7 × 2-5 µm
Basidia	2-celled 16-20 × 10-15 µm	2-celled 10-15 × 10-12.5 µm	2-4-celled 10-18 × 9-14 µm	2-4-celled 10-20 × 8-18 µm	2-4-celled 9-14.5 × 9-13 µm
Basidiospores	10-18 × 8-14 µm	7.5-10 × 7.5-8.8 µm	6-8 × 4-6 µm	9-15 × 8-12.5 µm	6 × 4 µm

## C. ASCOMYCOTINA

### *Abrothallus microspermus* TUL.

BELGIUM (DISTR. ARD.): SE Herbeumont, L6.26/FR.6015, *Acer*, on *Parmelia caperata* (L.) ACH., 1985, DIEDERICH 6130, SÉRUSIAUX & ROSE (anamorph).

GERMANY: N Bollendorf, K9.41/LA.0525, *Fagus*, on *P. caperata*, 1984, DIEDERICH 5674 & SÉRUSIAUX (teleomorph and anamorph).

The anamorph *Vouauxiomyces truncatus* (B. DE LESD.) DYKO & D. HAWKSW. seems to be more frequent than the teleomorph.

### *Abrothallus parmeliarum* (SOMMERF.) ARNOLD

G. D. OF LUXEMBOURG (OESLING): W Hoffelt, J8.31/GR.0550, *Salix cinerea*, on *Hypogymnia physodes* (L.) NYL., 1980, DIEDERICH 5360.

G. D. OF LUXEMBOURG (GUTLAND): E Mersch, L8.35/KA.9015, *Fraxinus*, on *Parmelia acetabulum* (NECKER) DUBY, 1984, DIEDERICH 5860; W Remich, N Reckingerhof, M8.48/LV.0590, *Fraxinus*, on *P. acetabulum*, 1985, DIEDERICH 6099; S Nagem, L7.28/GR.0515, *Tilia*, on *P. acetabulum*, 1979, DIEDERICH 1810; S Rambrouch, L7.18/GR.0520, *Fraxinus*, on *P. acetabulum*, 1979, DIEDERICH 6378; Beckerich, L8.31/GR.0510, *Acer* and *Tilia*, on *P. acetabulum*, 1979, 1985, DIEDERICH 6003, 6788; E Eppeldorf, K8.58/LA.0025, *Pyrus*, on *P. acetabulum*, 1980, DIEDERICH 6789; N Niederanven, Aarnescht, L8.58/LA.0005, *Pyrus*, on *P. acetabulum*, 1985, DIEDERICH 6646.

GERMANY: NE Beckingen, N9.28/\*, *Malus*, on *P. acetabulum*, 1984, DIEDERICH 5767.

FRANCE (Meuse, DISTR. LORR.): Damvillers, Côte de Morimont, N7.41/\*, *Pyrus*, on *P. acetabulum*, 1980, DIEDERICH 6790.

This fungus, frequent on the *Parmeliaceae*, has not yet been mentioned on *Parmelia acetabulum*. On this lichen it does not form galls, contrarily to what is observed on the other hosts. I did not find the anamorph *Vouauxiomyces santessonii* D. HAWKSW. The species was already mentioned from the Grand Duchy of Luxembourg by KOLTZ (1897 : 248) and FELTGEN (1899 : 381) (s. loc.), but no specimen has been found at LUX.

### *Actinopeltis peltigericola* D. HAWKSW.

G. D. OF LUXEMBOURG (GUTLAND): S Pétange, Prënzebiërg, M8.31/GQ.0590, on the underside (mostly on the veins) of *Peltigera membranacea* (ACH.) NYL., 1980, DIEDERICH 5057 (DIEDERICH, 1984); *ibid.*, 1981, WERNER (LG).

This species, known from Cyprus, Great-Britain (HAWKSWORTH, 1982 : 375) and Sweden (SANTESSON, 1984 : 3), only occurs on *Peltigera* div. sp.

***Arthonia epiphyscia* NYL.**

G. D. OF LUXEMBOURG (GUTLAND) : W Bissen, L8.14/KA.8515, *Pyrus*, on *Phaeophyscia orbicularis* (NECKER) MOBERG, 1979, DIEDERICH 5357 ; s. loc. (probably Echternach region), on *Ph. orbicularis*, < 1900, REINHARDT (LUX).

Widely scattered, but rare, in Europe. Also known from South America and Africa.

***Clypeococcum hypocenomyceae* D. HAWKSW.**

G. D. OF LUXEMBOURG (GUTLAND) : Berdorf, Zigzagschloeff, K9.51/LA. 0520, *Pinus*, on *Hypocenomyce scalaris* (ACH.) CHOISY, 1984, DIEDERICH 5836 ; S Fischbach, S Plankenhof, L8.36/KA.9510, *Pinus*, on *H. scalaris*, 1985, DIEDERICH 5903.

GERMANY : S Kaiserslautern (Biertal), *Pinus*, on *H. scalaris*, 1984, JOHN 5184 (herb. JOHN, herb. DIEDERICH 5900).

This parasite of *Hypocenomyce scalaris* has only been known from Great-Britain, Denmark and Austria.

***Lichenostigma rugosa* THOR (fig. 2)**

G. D. OF LUXEMBOURG (OESLING) : NE Feulen, Wark valley, K8.44/KA. 8525, on a slate-rock, on *Diploschistes scruposus* (SCHREBER) NORM., 1984, DIEDERICH 5472.

G. D. OF LUXEMBOURG (GUTLAND) : Lorentzweiler, churchyard, L8.46/KA. 9005, wall, on *D. scruposus*, 1981, DIEDERICH 5910 ; s. loc., on *D. scruposus*, < 1850, TINANT T297, T298, T317, T324 (LUX).

This species recently described is a parasymbiont of several *Diploschistes* species. It is known from most continents and seems to be rather common.

Contrarily to what is indicated by THOR (1985), the fungus often grows, in my collection from Feulen (DIEDERICH 5472), on the apothecia (thallus margin and disc) of *Diploschistes scruposus*. It is remarkable that many ascomata of *L. rugosa* localized on the disc of the host apothecia are lichenized and possess their own small greenish thallus of 150 to

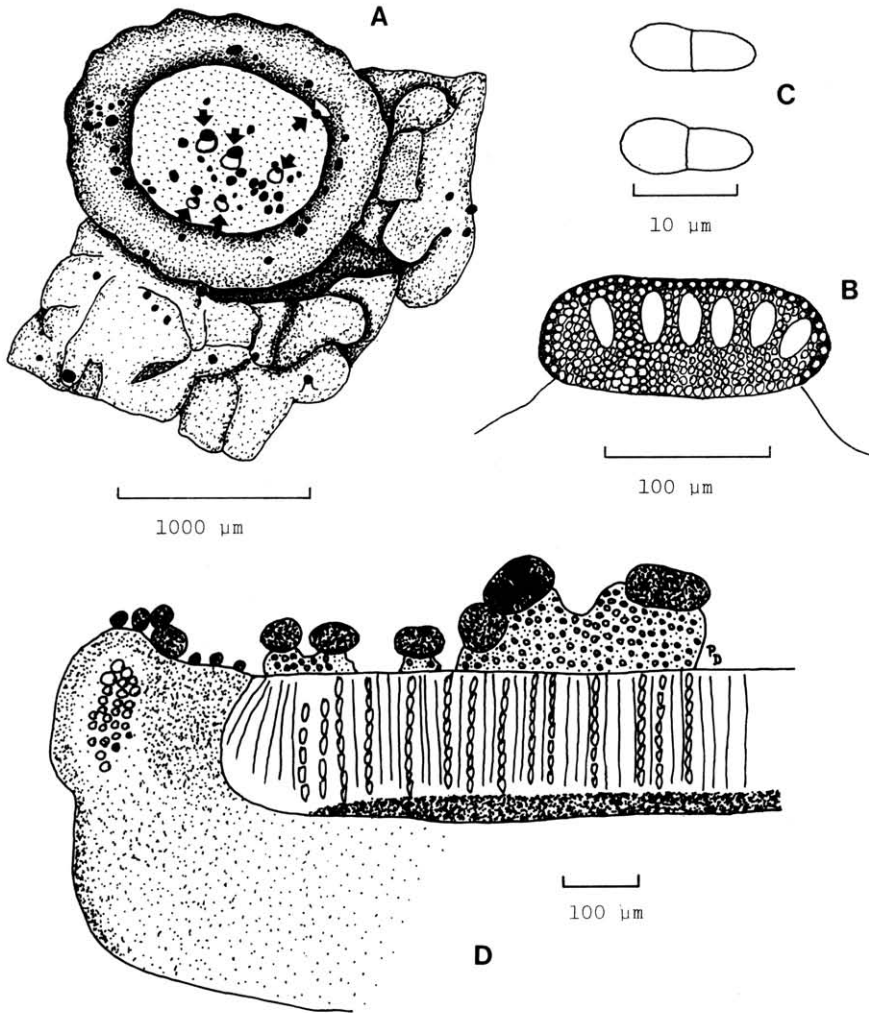


FIG. 2. — *Lichenostigma rugosa* (DIEDERICH 5472) : A, thallus and apothecium of *Diploschistes scruposus* covered by the ascomata of *L. rugosa*, five ascomata on the disc and one on the thallose margin are lichenized (arrows) ; B, section through an ascoma ; C, ascospores ; D, section through an apothecium of *D. scruposus* covered by the ascomata of *L. rugosa*, the ascomata growing on the hymenium are lichenized.



250  $\mu\text{m}$  in diameter. This phenomenon is rarely observed on the margin of the apothecia and never on the thallus itself. The algae of the *Lichenostigma* thallus are smaller (4-5  $\mu\text{m}$ ) than those of the *Diploschistes* thallus (8-11  $\mu\text{m}$ ).

*Lichenostigma rugosa* seems to be a fungus formerly lichenized which has lost its own algae through its lichenicolous way of life, but which still remains lichenized when growing on the apothecial disc of its host. It is thus lichenized with its own algal populations when its host algae are not available nearby.

***Merismatium lopadii* (ANZI) ZOPF (fig. 3)**

G. D. OF LUXEMBOURG (GUTLAND) : E Schoenfels, Gousseleberg, L8.45/KA.9010, *Larix*, on *Lecanora conizaeoides* NYL. ex CROMB., 1984, DIEDERICH 5854 ; Larochette, Manzebaach, L8.27/KA.9515, *Pinus*, on *L. conizaeoides*, 1985, DIEDERICH 6074.

Perithecia dark brown to black, of 70  $\mu\text{m}$  in diameter, partially or completely immersed in the host thallus. Wall consisting of isodiametric cells of (2.5-)5(-9)  $\mu\text{m}$  in diameter. Paraphyses absent. Asci about 10 in each perithecium. Ascospores pale brown, smooth-walled, muriform, with (1-)3-5(-7) transverse septa and 0-1 longitudinal septa, 8-24  $\times$  4.4-8  $\mu\text{m}$ .

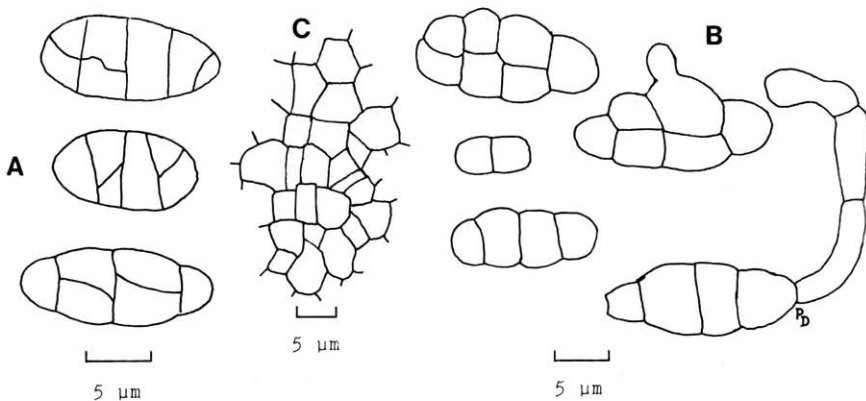


FIG. 3. — *Merismatium lopadii* (DIEDERICH 5854) : A, ascospores observed in water ; B, ascospores observed in KOH ; C, surface view of perithecial wall.

Known from some old collections from Austria, Great-Britain and Finland (?), on *Lopadium pezizoideum* (ACH.) KOERBER, *Catapyrenium lachneum* (ACH.) R. SANT. and *Protoblastenia calva* (DICKSON) ZAHLBR. or *P. rupestris* (SCOP.) STEINER, and from one more recent collection from Czechoslovakia (VĚZDA, 1970 : 222). *M. lopadii* seems to be a variable species that is frequent on a large number of lichen species, but it has rarely been collected because of its extremely small size.

***Microcalicium arenarium* (HAMPE ex MASSAL.) TIBELL**

G. D. OF LUXEMBOURG (GUTLAND) : Berdorf, Binzeltschloeff, L9.11/LA. 0520, sandstone rock, 1984, DIEDERICH 5749 & SÉRUSIAUX ; Greisch, L8.43/GR.1510, sandstone rock, 1983, DIEDERICH 5759 ; W Hunsdorf, L8.45/KA.9005, sandstone rock, 1984, DIEDERICH 6349.

BELGIUM (DISTR. ARD.) : Nadrin, J7.24/FR.9055, schistose rock, 1982, SÉRUSIAUX 2811 (LG) ; Mont, J7.26/FR.9055, roadbank, on wood, 1982, SÉRUSIAUX 2793 (LG) ; N Auby-sur-Semois, K6.54/FR.5520, schistose rock, 1971, J. L. DE SLOOVER 11214 (LG).

This parasite of *Psilolechia lucida* (ACH.) M. CHOISY is rather common in Luxembourg. It has already been mentioned by KOLTZ (1897 : 300) (s. loc.), but no specimen has been found at LUX.

***Muellerella lichenicola* (SOMMERF.) D. HAWKSW.**

G. D. OF LUXEMBOURG (GUTLAND) : W Larochette, Manzebaach, L8.26/KA. 9515, sandstone rock, on *Verrucaria* cf. *viridula* (SCHRADER) ACH. (sterile), 1983, DIEDERICH 5810.

Widely distributed in Europe.

***Muellerella triseptata* DIEDERICH sp. nov. (fig. 4)**

*Pseudoperithecium lichenicola*, in thallo *Buelliae griseovirentis* crescentia, primo immersa, maturitate erumpentes, dispersa, subglobosa, atra, 75-125 µm diam., prope ostiolum cellulis nigro-brunneis, subglobosis, 4-6 µm diam. tecta. Paries brunneus, cellulis pseudoparenchymatis, subglobosis ad polyedricis, 4-6,5 µm diam. Paraphyses in pseudoperitheciiis veteribus indistinctae. Periphyses 2-3 µm crassae. Asci elongato-clavati, bitunicati, crassitunicati, multispori, in iodo non caerulescentes, 30-50 × 9-15 µm. Ascosporae fusiformes, (0-2-)3-septatae, pallide brunneae, 7-11(-13) × 2-3 µm.

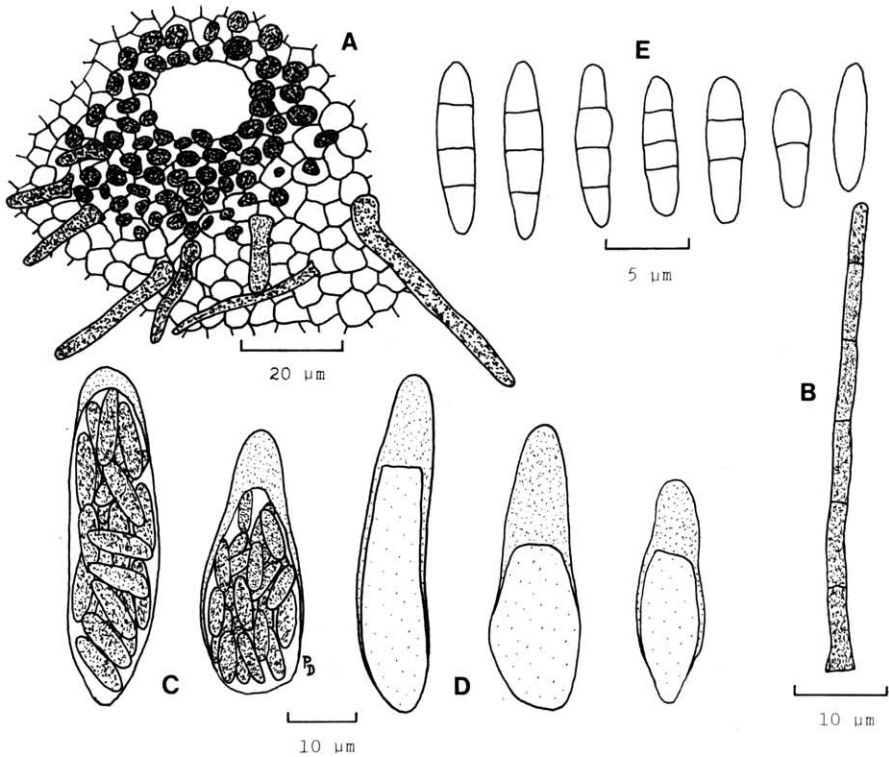


FIG. 4. — *Muellerella triseptata* (LG, holotype): A, surface view of pseudoperithecium near the ostiole; B, hair; C, mature asci; D, young asci; E, ascospores.

Holotypus : Luxemburgum, Gutland, W Hunsdorf, L8.45/KA.9005, in thallo *Buelliae griseovirentis* (TURNER & BORRER ex SM.) ALMB., in cortice *Fraxini*, 26 X 1984, DIEDERICH 5878 (LG). A microscopical preparation (with one ascocarp) conserved in herb. DIEDERICH may be considered as an isotype.

Pseudoperithecia growing in the thallus of *Buellia griseovirens*, first immersed, superficial at maturity, scattered, subglobose, black, ostiolate, 75-125 µm in diameter, covered near the ostiole with brownish-black subglobose cells of 4-6 µm in diameter, perhaps covered with hairs (see below). Wall brown, with cells pseudoparenchymatous, subglobose to polyhedral, 4-6.5 µm in diameter. Paraphyses becoming gelatinized and indistinct in mature ascocarps. Periphyses developed in the upper part of

the ascocarps, 2-3  $\mu\text{m}$  thick. Asci elongate-clavate, bitunicate, thick-walled, multi-spored, not reacting with iodine, 30-50  $\times$  9-15  $\mu\text{m}$ . Ascospores irregularly arranged in the asci, fusiform, (0-2-)3-septate, pale brown, 7-11(-13)  $\times$  2-3  $\mu\text{m}$ .

*Muellerella triseptata* is distinguished from most *Muellerella* species by its 3-septate spores. The only species with 3-septate spores previously known is *M. vesicularia* (LINDSAY) D. HAWKSW. which differs in the much larger spores (12-15.5  $\times$  5-7  $\mu\text{m}$ ).

The ascocarps of the new species are covered by brown septate hairs of about 50  $\mu\text{m}$  of length. It is not clear to me if these hairs belong to the *Muellerella* ascocarps or to an hyphomycete growing on them. *M. triseptata* seems to be a parasymbiont rather than a parasite.

***Phaeospora parasitica* (LÖNNR.) ARNOLD**

G. D. OF LUXEMBOURG (GUTLAND): Ahn, Palmberg, M9.12/LA.1000, on limestone, on *Lecanora* sp., 1981, DIEDERICH 3756.

Perithecia black, of 90-175  $\mu\text{m}$  in diameter, growing on the apothecia (especially on the margin, sometimes on the disc) or on the thallus of the host. Paraphyses absent. Asci of about 50  $\times$  8  $\mu\text{m}$ , 8-spored, thin-walled. Spores brown, 3-septate, 12-16  $\times$  5.5-6  $\mu\text{m}$ .

Widely distributed in Europe and known as a parasite of many lichen species.

***Polycoccum peltigerae* (FUCKEL) VĚZDA**

GERMANY: S Manderscheid, \*/LA.5045, on *Peltigera praetextata* (FLOERKE ex SOMMERF.) ZOPF, 1984, DIEDERICH 5534, SÉRUSIAUX, ROSE & CRAM.

This species is known from Germany, France, Switzerland and Great-Britain.

***Skyttea acrocordiae* DIEDERICH sp. nov. (fig. 5)**

Apothecia lichenicola, in thallo *Acrocordiae gemmatae* crescentia, primo immersa, erumpentes et clausa, deinde lati poro aperientia, urceolata, brunneo-rubra, 50-200(-300)  $\mu\text{m}$  diam. Excipulum flavo-brunneolum, pseudoparenchymaticum, cellulis 5-11  $\times$  3,5-5,5  $\mu\text{m}$ , pilis hyalinis 25-50  $\times$  2,4-5,5  $\mu\text{m}$ . Hymenium incoloratum vel luteolum, 40-60  $\mu\text{m}$ .

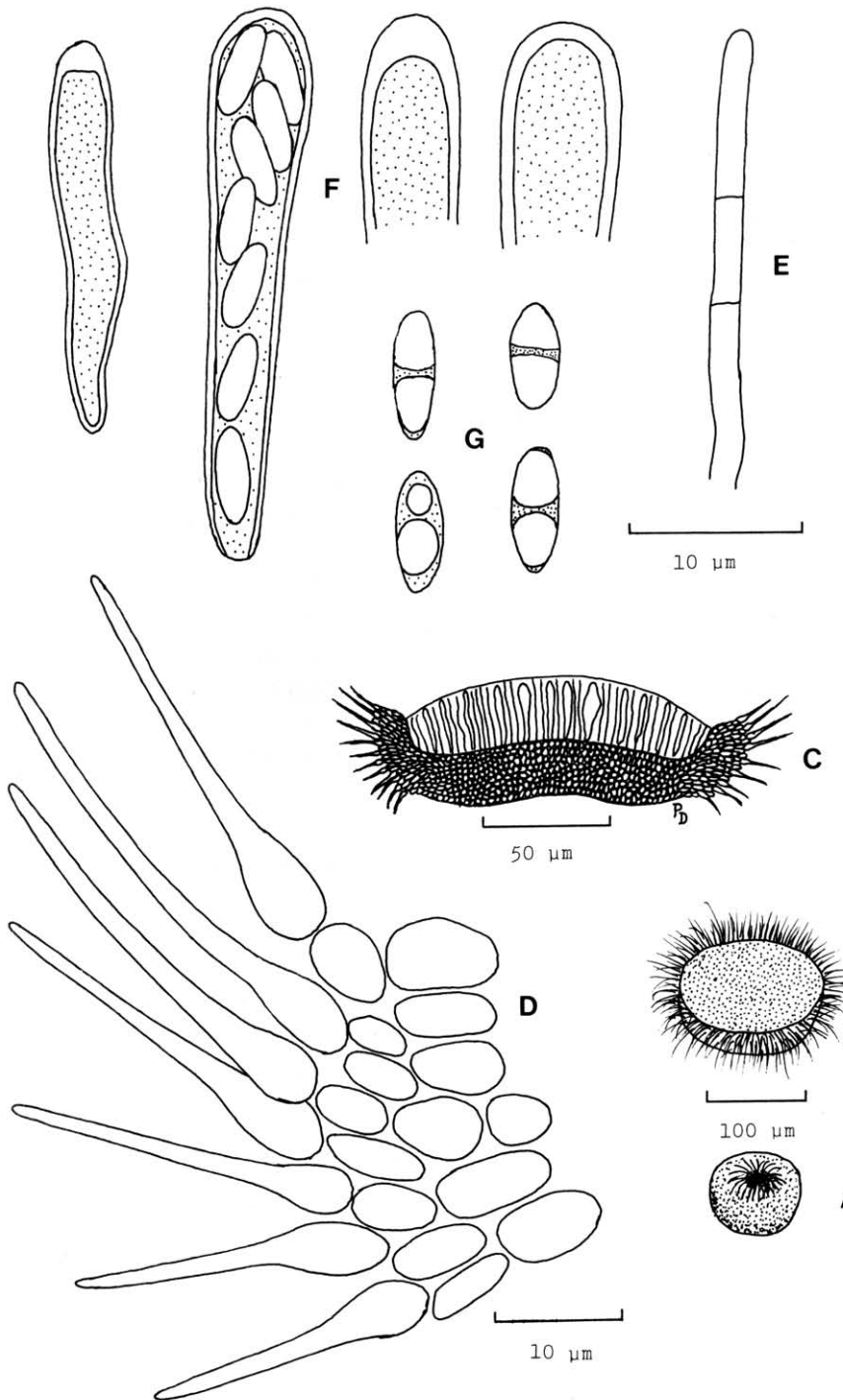


FIG. 5. — *Skyttea acrocordiae* (IMI, holotype): A, young apothecium; B, old apothecium; C, section through an apothecium; D, excipular hairs; E, paraphysis; F, asci; G, ascospores.

Paraphyses filiformes, simplices, septatae, 1,5-2,4  $\mu\text{m}$  latae. Asci crassitunicati, apice crassati ubi semi-maturi, 8-spori, in iodo non caerulescentes, 22-45  $\times$  4-8  $\mu\text{m}$ . Ascosporae hyalinae, ovoideae, 2-guttulatae, haud septatae, 5,5-7,5  $\times$  2,4-3,2  $\mu\text{m}$ .

Holotypus : Belgica, prov. Luxemburgum, distr. lorr., M7.14/FR. 8500, in thallo *Acrocordiae gemmatae* (ACH.) MASSAL., in cortice *Quercus* et *Aceris*, 19 VI 1984, DIEDERICH 5566, SÉRUSIAUX & ROSE (IMI 300097). Isotypus : herb. DIEDERICH.

Exsiccatum : France (Orne), s. loc., on *Acrocordia gemmata* (sub *Verrucaria gemmata*), s.d., OLIVIER, Lich. exsicc. 245 (LUX, not seen in LG).

Apothecia first immersed in the thallus of *Acrocordia gemmata*, later superficial, brownish red, initially closed, then opening by a pore ; disc finally expanded, 50-200(-300)  $\mu\text{m}$  in diameter, with hyaline hairs easily visible by a dissecting microscope ( $\times$  40), 25-50  $\times$  2.4-5.5  $\mu\text{m}$ . Exciple yellowish brown, pseudoparenchymatous, with cells 5-11  $\times$  3.5-5.5  $\mu\text{m}$ . Hymenium hyaline or light yellowish, 40-60  $\mu\text{m}$ . Paraphyses filiform, not ramified, septate, 1.5-2.4  $\mu\text{m}$  thick. Asci with thickened walls, apex often thickened at semi-maturity, 8-spored, not reacting with iodine, 22-45  $\times$  4-8  $\mu\text{m}$ . Ascospores hyaline, ovoid, generally containing 2 oil drops, non-septate, 5.5-7.5  $\times$  2.4-3.2  $\mu\text{m}$ .

*Skyttea acrocordiae* is characterized by the brownish red apothecia (the other described species have dark or black apothecia), the yellowish brown exciple, the hyaline hymenium and the ovoid spores generally containing 2 drops.

The species seems to be confined to *Acrocordia gemmata*. No other lichenicolous fungus has yet been described from this host. It has been collected in a *Lobarion* community with *Lobaria pulmonaria* (L.) HOFFM., *L. scrobiculata* (SCOP.) DC., *Peltigera collina* (ACH.) SCHRADER, *P. horizontalis* (HUDS.) BAUMG., *Parmeliella triptophylla* (ACH.) MÜLL. ARG., *Leptogium lichenoides* (L.) ZAHLBR., *Cetrelia olivetorum* (NYL.) CULB. & CULB., *Normandina pulchella* (BORRER) NYL. and several other interesting crustose species (SÉRUSIAUX, DIEDERICH & ROSE, 1985).

*Skyttea hawksworthii* DIEDERICH sp. nov. (fig. 6)

Apothecia lichenicola, immersa, interdum maturitate erumpentes, primo clausa, deinde poro aperientia, urceolata, atra, 75-175  $\mu\text{m}$  diam. Excipulum viride, pseudoparenchymaticum, cellulis 5-8  $\mu\text{m}$  diam. Pili hyalini, apice refracti, 30-60(-80)  $\times$  1,8-3,5  $\mu\text{m}$ . Paraphyses filiformes,

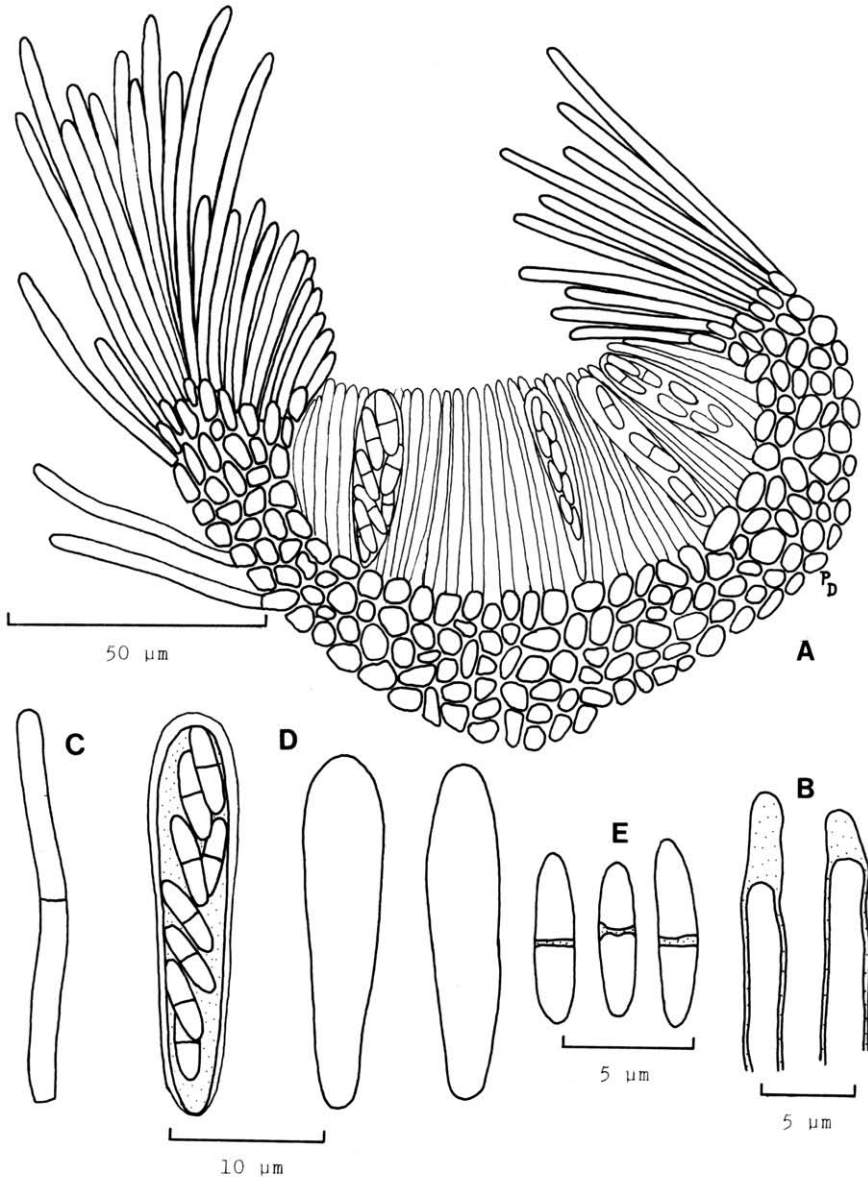


FIG. 6. — *Skyttea hawksworthii* (IMI, holotype) : A, section through an apothecium ; B, excipular hairs ; C, paraphysis ; D, asci ; E, ascospores.

simplices, septatae, 1,4-1,8  $\mu\text{m}$  latae. Asci crassitunicati, 8-spori, in iodo non caerulescentes, 18-25  $\times$  4-5,5  $\mu\text{m}$ . Ascosporae hyalinae, anguste ellipsoideae vel fusiformes, 1-septatae, 6-8(-10)  $\times$  2-2,5  $\mu\text{m}$ .

Holotypus : Luxemburgum, Gutland, W Hunsdorf, L8.45/KA.9005, in thallo *Verrucariae* (?), in tegula, 4 III 1984, DIEDERICH 5099 (IMI 300096). Isotypus : herb. DIEDERICH.

Apothecia black, immersed in the host thallus, sometimes erumpent at maturity, first closed, then opening by a pore, 75-175  $\mu\text{m}$  in diameter ; hairs visible with a dissecting microscope ( $\times$  40). Excipulum composed of greenish pseudoparenchymatous cells, irregular in shape and mainly 5-8  $\mu\text{m}$  in diameter. Hairs hyaline, smooth, simple, non-septate, the apex thickened internally and so refractive, the thickened area up to 10  $\mu\text{m}$  long, 30-60(-80)  $\times$  1.8-3.5  $\mu\text{m}$ . Paraphyses filiform, simple, septate, 1.4-1.8  $\mu\text{m}$  thick. Asci elongate-clavate, thick-walled, 8-spored, not reacting with iodine, 18-25  $\times$  4-5.5  $\mu\text{m}$ . Ascospores hyaline, narrowly ellipsoid to fusiform, 1-septate, 6-8(-10)  $\times$  2-2.5  $\mu\text{m}$ .

*Skyttea hawksworthii* is the first known *Skyttea* species having septate spores and long hairs (over 30  $\mu\text{m}$ ) on the excipulum. By its greenish excipulum the new species looks similar to *S. spinosa* D. HAWKSW. & COPPINS and *S. viridis* D. HAWKSW. & COPPINS (HAWKSWORTH, 1982 : 392-396), but differs in the length of hairs and in the shape, size and septation of spores. The fungus grows on a greenish lichen crust belonging perhaps to *Verrucaria*.

*Skyttea hawksworthii* is named in honour of Professor D. HAWKSWORTH in recognition of his contributions to the knowledge of lichenicolous fungi and as an expression of thanks to his helpfulness in realizing the present paper.

### *Skyttea nitschkei* (KOERBER) SHERW., D. HAWKSW. & COPPINS

G. D. OF LUXEMBOURG (GUTLAND) : Berdorf, Aesbaach, L9.12/LA.1020, *Quercus*, 1984, DIEDERICH 5620 & SÉRUSIAUX 6568b (LG) ; *ibid.*, *Fagus*, 1984, DIEDERICH 5631 & SÉRUSIAUX ; Berdorf, Zigzagschloeff, K9.51/LA.0520, *Quercus*, 1984, DIEDERICH 5653 & SÉRUSIAUX ; SE Beaufort, Hallerbach, L9.11/LA.0520, *Quercus*, 1984, DIEDERICH 6795.

BELGIUM (DISTR. ARD.) : Nassogne, Diglette valley, J6.37/FR.6545, *Quercus*, 1984, SÉRUSIAUX 6190 (LG).

This species has been known from the British Isles, Denmark, France, Germany and South America. It grows exclusively on *Thelotrema lepadinum* (ACH.) ACH.



***Sphaerulina chlorococca* (LEIGHTON) R. SANT.**

BELGIUM (DISTR. LORR.): Etalle, M7.14/FR.8500, *Populus*, 1984, DIEDERICH 5563.

This fungus which generally grows on *Normandina pulchella* has been found independently of this species and lichenized. Its thallus is formed by small greenish yellow granules, but is more or less continuous around the perithecia. The spores are 3-7-septate sometimes with some longitudinal septa.

***Sphinctrina leucopoda* NYL.**

G. D. OF LUXEMBOURG (OESLING): NE Feulen, Wark valley, K8.44/KA. 8525, on a slate-rock, on *Diploschistes scruposus*, 1984, DIEDERICH 5845.

This lichenicolous fungus generally occurs on *Pertusaria* div. sp. VÉZDA (1963 : 157), however, collected it on *Diploschistes scruposus* (in Czechoslovakia). It has been mentioned from Assenois (Belgium) by SÉRUSIAUX, LAMBINON & MALAISE (1983 : 7).

***Stigmatidium schaeereri* (MASSAL.) TREVISAN**

G. D. OF LUXEMBOURG (GUTLAND): Blaschette, Bëddelboesch, L8.46/KA. 9505, on a dead tree, on *Lecanora* gr. *carpineae* (L.) VAINIO (apothecia), 1984, DIEDERICH 5466.

One perithecium has been found in the same locality on the thallus of *Lecidella elaeochroma* (ACH.) M. CHOISY. The species is very frequent in Europe on a large number of different hosts.

## D. HYPHOMYCETES

***Bispora christiansenii* D. HAWKSW.**

G. D. OF LUXEMBOURG (OESLING): Beiler, Biedem, J8.15/KA.9060, on a wooden post, in the apothecia of an undetermined lichen, 1983, DIEDERICH 3922 & REICHLING; SW Asselborn, J8.32/GR.1050, on *Micarea leprosula* (Th. Fr.) COPPINS & A. FLETCHER (apothecia), 1980, DIEDERICH 6794.

G. D. OF LUXEMBOURG (GUTLAND): Berdorf, Vogelsmühle, L9.11/LA.0520, *Tilia*, on *Lecidella elaeochroma* (thallus), 1984, DIEDERICH 5491.

BELGIUM (DISTR. ARD.) : Buret, J8.31/GR.3510, on rocks, on *Lecanora soralifera* (SUZA) RASÄNEN, 1980, DIEDERICH 3971.

This species seems to be widely distributed in Europe and is known from the following countries : Great-Britain, Denmark, Finland, Germany and Italy. I recently collected it also in Spain (Oviedo, 1985, DIEDERICH 6249).

***Hobsonia christiansenii* BRADY (ined.)**

G. D. OF LUXEMBOURG (GUTLAND) : E Mersch, L8.35/KA.9015, *Fraxinus* (not lichenicolous ?), 1984, DIEDERICH 5862 ; NW Mondercange, M8.42/GQ.1090, *Salix* cf. *caprea*, on *Physcia tenella* (SCOP.) DC. and *Scoliciosporum chlorococcum* (GRAEWE ex STENH.) VĚZDA, 1983, REICHLING (herb. DIEDERICH 5056, IMI 287112).

This species has pinkish sporodochia resembling those of *Illosporium* sp. and hyaline helicoid conidia. It has already been mentioned by HAWKSWORTH (1979 : 232) from Canada and Italy.

***Monodictys lepraria* (BERK.) M. B. ELLIS**

G. D. OF LUXEMBOURG (GUTLAND) : W Bissen, L8.14/KA.8515, *Pyrus*, on *Pertusaria coccodes* (ACH.) NYL., 1979, DIEDERICH 3864.

Formerly known from the British Isles and from Canada.

***Sclerococcum sphaerale* (ACH.) FR.**

G. D. OF LUXEMBOURG (GUTLAND) : Berdorf, Binzeltschloeff, L9.11/LA.0520, on a sandstone rock, on *Pertusaria corallina* (L.) ARNOLD, 1984, DIEDERICH 5745 & SERUSIAUX ; Beaufort, near the castle, K8.58/LA.0020, on a sandstone rock, on *P. corallina*, 1984, DIEDERICH 5698b.

A common European species growing on *Pertusaria* sp.

***Taeniolella delicata* M. S. CHRIST. & D. HAWKSW.**

G. D. OF LUXEMBOURG (OESLING) : Heinerscheid, Casselslay, J8.45/KA.9045, on rocks, on *Diploschistes scruposus*, 1983, DIEDERICH 5031.

First record of this species on *Diploschistes scruposus* (thallus).

***Taeniolella phaeophysciae* D. HAWKSW.**

G. D. OF LUXEMBOURG (GUTLAND) : SW Mersch, Bolaker, L8.34/KA.8510, *Malus*, on *Phaeophyscia orbicularis*, 1979, DIEDERICH 1650, 1840 ; NE Bissen, L8.14/KA.8520, *Fraxinus*, on *Ph. orbicularis*, 1979, DIEDERICH 2049 ; Hobscheid, L8.41/GR.1005, *Tilia*, on *Ph. orbicularis*, 1979, DIEDERICH 6381.

Formerly known from Great-Britain, Ireland (HAWKSWORTH, 1979 : 257) and Belgium (SÉRUSIAUX, LAMBINON & MALAISE, 1983 : 8), most probably common. I recently collected it in France (dep. Hautes-Pyrénées, Pyrénées-Atlantiques and Moselle).

***Taeniolella punctata* M. S. CHRIST. & D. HAWKSW.**

G. D. OF LUXEMBOURG (OESLING) : Heinerscheid, Casselslay, J8.45/KA.9045, *Carpinus*, on *Graphis scripta* (L.) ACH., 1983, DIEDERICH 3993.

G. D. OF LUXEMBOURG (GUTLAND) : W Larochette, Manzebaach, L8.27/KA.9515, *Fagus*, on *Graphis scripta*, 1984, DIEDERICH 5697 ; Berdorf, Binzeltschloeff, L9.11/LA.0520, *Acer*, on *Thelotrema lepadinum*, 1981 ; DIEDERICH 3870 ; *ibid.*, 1984, DIEDERICH 5739 & SÉRUSIAUX ; Blaschette, Bëddelboesch, L8.46/KA.9505, *Carpinus*, on *Graphis scripta*, 1983, DIEDERICH 3630, 3945.

BELGIUM (DISTR. LORR.) : Virton, Croix-Rouge, M7.13/FQ.8095, on *Graphis scripta*, 1979, SÉRUSIAUX 2066 (LG).

GERMANY : S Manderscheid, \*/LA.5045, *Carpinus*, on *Graphis scripta*, 1984, DIEDERICH 5524, SÉRUSIAUX, ROSE & CRAM.

This species has only been known from Denmark (type-locality and several others, e.g. Zealand, Vemmetofte, in VĚZDA, Lichenes Selecti Exsiccati nr 1925, LG). It seems to be widely distributed in Europe.

## E. COELOMYCETES

***Cornutispora lichenicola* D. HAWKSW. & B. SUTTON**

BELGIUM (DISTR. LORR.) : Etalle, M7.14/FR.8500, *Quercus*, on *Parmelia caperata*, 1984, DIEDERICH 5549.

This species known from Great-Britain, Austria, Switzerland and Italy has not yet been mentioned on *Parmelia caperata*. I collected it also in Spain (Oviedo, 1985, DIEDERICH 6232).

***Lichenoconium erodens* M. S. CHRIST. & D. HAWKSW.**

G. D. OF LUXEMBOURG (OESLING): Heinerscheid, Casselslay, J8.45/KA.9045, *Carpinus*, on *Lecanora conizaeoides*, 1983, DIEDERICH 3976.

G. D. OF LUXEMBOURG (GUTLAND): Mersch, Hunnebur, L8.34/KA.8510, *Acer*, on *Lecanora* sp., 1982, DIEDERICH 3679; Blaschette, Bëddelboesch, L8.46/KA.9504, *Carpinus*, on *Mycoblastus sterilis*, 1983, DIEDERICH 3941; *ibid.*, *Quercus*, on *Parmelia sulcata* TAYLOR, 1983, DIEDERICH 5043; *ibid.*, on a dead tree, on *Parmelia saxatilis* (L.) ACH., 1984, DIEDERICH 5456; W Hunsdorf, L8.45/KA.9005, *Populus tremula*, on *Lecidella elaeochroma*, 1984, DIEDERICH 5385; Berdorf, Zigzagschloeff, K9.51/LA.0520, *Pinus*, on *Hypogymnia physodes*, 1984, DIEDERICH 5642; W Steinfurt, *Betula* and *Alnus*, on *Lecanora conizaeoides*, 1984, DIEDERICH 5105, 5143; *ibid.*, *Alnus*, on *Foraminella ambigua* (WULFEN) S. F. MEYER, 1984, DIEDERICH 5137; NW Moutfort, Schlaederbaach, *Fagus*, on *Lecanora conizaeoides*, 1984, DIEDERICH 5486.

GERMANY: N Bollendorf, K9.41/LA.0525, *Fagus*, on *Lecanora* cf. *argentata* (ACH.) DEGEL., 1984, DIEDERICH 5673.

One of the most common lichenicolous Coelomycetes.

***Lichenoconium lecanorae* (JAAP) D. HAWKSW.**

G. D. OF LUXEMBOURG (GUTLAND): Hunsdorf, Zapp, L8.45/KA.9005, *Prunus*, on *Lecanora conizaeoides*, 1982, DIEDERICH 3696; Blaschette, Bëddelboesch, L8.46/KA.9505, *Carpinus*, on *L. conizaeoides*, 1983, DIEDERICH 3639; *ibid.*, *Quercus*, on *Parmelia sulcata*, 1983, DIEDERICH 5048; *ibid.*, *Carpinus*, on *Pertusaria pertusa* (WEIGEL) TUCK., 1984, DIEDERICH 5459; Lorentzweiler, Kiischtebiere, L8.45/KA.9010, *Picea*, on *L. conizaeoides*, 1983, DIEDERICH 3964; Luxembourg, Sichenhaff, M8.15/KA.9000, *Populus*, on *L. conizaeoides*, 1978, DIEDERICH 3713; Berdorf, Zigzagschloeff, K9.51/LA.0520, *Pinus*, on *L. conizaeoides*, 1984, DIEDERICH 5840; *ibid.*, on *Parmeliopsis aleurites* (ACH.) NYL., 1984, DIEDERICH 5839; W Pretttange, Gousselerbiere, L8.45/KA.9010, *Larix*, on *L. conizaeoides*, 1985, DIEDERICH 5399.

BELGIUM (DISTR. ARD.): Grand-Halleux, H8.12/GR.0580, on *L. conizaeoides*, 1983, MALAISE 83/4 bis/935 (LG).

First record of this species on *Parmeliopsis aleurites* (ACH.) NYL.

***Lichenoconium lichenicola* (P. KARSTEN) PETRAK & H. SYDOW**

GERMANY: NE Beckingen, N9.28/\*, *Malus*, on *Physcia tenella*, 1984, DIEDERICH 5769.

Pycnidia black, 100-125 µm in diameter, on the apothecia (disc and thallus margin) and the thallus of the host. Conidia brown, verruculose, globose or ellipsoid, often with a truncated base, 4.8-6.8 × 3.2-4.2 µm. Conidiogenous cells hyaline, 7.2-10 × 2.8-3.2 µm.

This species has only been known from the type locality in Finland [on *Physcia aipolia* (EHRH. ex HUMB.) FÜRNRÖHR].

***Lichenoconium pyxidatae* (OUDEM.) PETRAK & H. SYDOW**

GERMANY : N Bollendorf, K9.41/LA.0525, *Fagus*, on *Cladonia* cf. *pyxidata* (L.) HOFFM., 1984, DIEDERICH 5671.

A common European fungus, growing on several *Cladonia* and *Cladina* species.

***Lichenoconium reichlingii* DIEDERICH sp. nov. (fig. 7)**

Pycnidia lichenicola, in thallo *Ramalinae fraxineae* crescentia, dispersa vel laxe aggregata, immersa sed ad apices erumpentes, subglobosa, nigra, 60-100  $\mu\text{m}$  diam., poro irregulari dehiscentia. Parietes plerumque 6-10  $\mu\text{m}$  crassi, 2-3(-4) stratis cellularum pseudoparenchymaticarum constati, cellulis polyedricis vel rotundatis, plerumque 5-7(-10)  $\times$  2,5-5  $\mu\text{m}$ , exterioribus atrobrunneis et crassiparietalibus. Cellulae conidiogenae phialidicae vel annellidicae, subcylindricae vel ampulliformes, hyalinae, (5,5-)7-10  $\times$  2,8-4  $\mu\text{m}$ . Conidia ellipsoidea vel claviformia, basi distincte attenuata et truncata, brunnea, haud distincte guttulata, verruculosa, (6-)8-11  $\times$  (3-)5-7,2  $\mu\text{m}$ .

Holotypus : Luxemburgum, Gutland, W Beckerich, L8.31/GR.0510, in thallo *Ramalinae fraxineae* (L.) ACH., in cortice *Aceris*, 9 VIII 1978, DIEDERICH 5883 (LG). Isotypus : herb. DIEDERICH.

Pycnidia scattered to loosely aggregated, immersed in the host thallus but becoming erumpent at the apices, subglobose, black, 60-100  $\mu\text{m}$  in diameter, opening by an irregular pore. Pycnidial wall mainly 6-10  $\mu\text{m}$  thick, composed of 2-3(-4) layers of pseudoparenchymatous cells; cells polyhedral to rounded, mainly 5-7(-10)  $\times$  2.5-5  $\mu\text{m}$ , the outer dark brown and thick-walled, the inner pale brown to hyaline and thinner-walled. Mycelium ramifying through the lichen thallus; hyphae brown, septate, 2.4-5  $\mu\text{m}$  thick, with 0.6-1  $\mu\text{m}$  thick walls. Conidiogenous cells lining the internal wall of the pycnidial cavity, phialidic or annellide-like with 1 annellation, subcylindrical to ampulliform, hyaline, (5.5-)7-10  $\times$  2.8-4  $\mu\text{m}$ . Conidia ellipsoid or clavate, distinctly tapered and truncated at the base, brown, not distinctly guttulate; walls verruculose by light microscopy, (6-)8-11  $\times$  (3-)5-7.2  $\mu\text{m}$ .

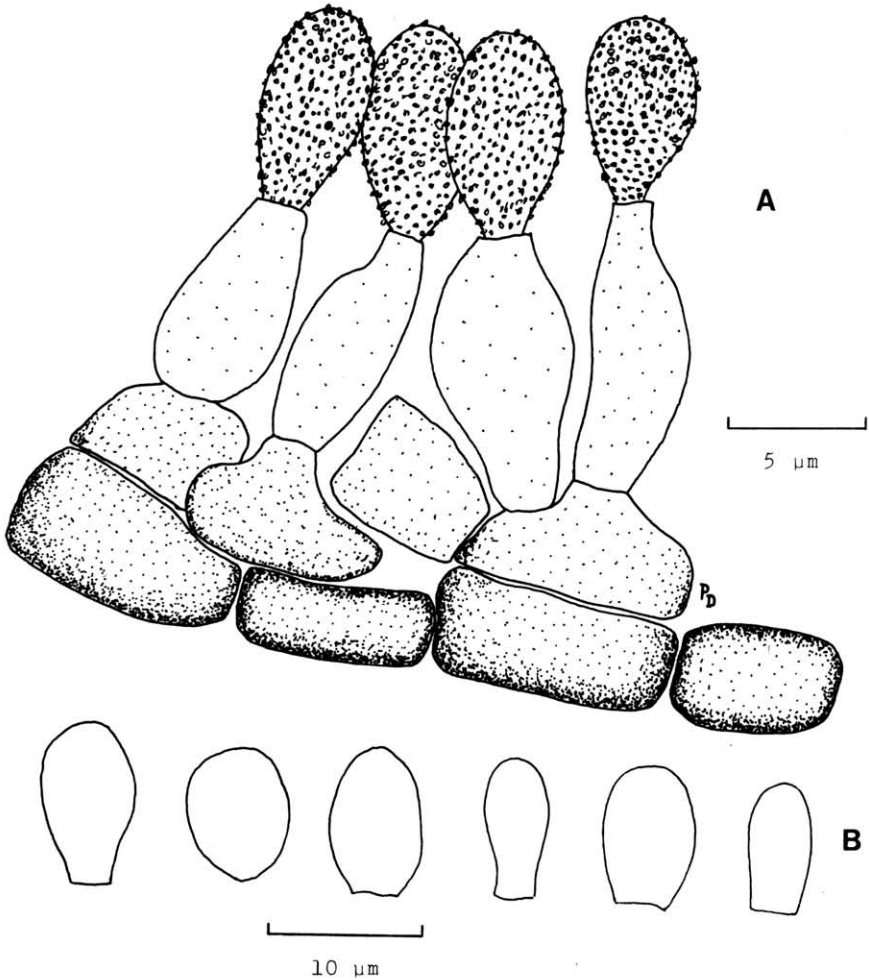


FIG. 7. — *Lichenoconium reichlingii* (LG, holotype) : A, section through the pycnidial wall with conidiogenous cells and young conidia ; B, conidia.

*Lichenoconium reichlingii* is easily separated from the other *Lichenoconium* species by the size of the conidia. On the infected thallus of *Ramalina fraxinea* there first appears a black spot formed by the mycelium of the parasite. This spot becomes larger, while its center turns pale. Finally we have a white spot with a black margin containing one or several pycnidia.

The new species is named in honour of Professor L. REICHLING (Luxembourg) in recognition of his important contribution to the study of the flora of the G. D. of Luxembourg.

Other specimen examined :

G. D. OF LUXEMBOURG (GUTLAND) : Between Brouch and Saeul, L8.33/KA. 8010, *Tilia*, on *Ramalina fraxinea*, 1979, DIEDERICH 5884.

***Lichenoconium usneae*** (ANZI) D. HAWKSW.

FRANCE (Meuse, DISTR. LORR.): Damvillers, Côte de Morimont, N7.41/\*, *Prunus*, on *Ramalina fastigiata* (PERS.) ACH., 1980, DIEDERICH 2981.

Widely distributed in Europe and North America and growing on many lichen species.

***Lichenodiplis lecanorae*** (VOUAUX) DYKO & D. HAWKSW.

GERMANY : Between Lautenbach and Dörrenbach, *Malus*, on *Lecanora saligna* (SCHRADER) ZAHLBR. (disc and margin of apothecia), 1984, DIEDERICH 5775 & JOHN.

Widely distributed in Europe.

***Phoma lecanorina*** DIEDERICH sp. nov. (fig. 8)

Pycnidia lichenicola, in thallo *Lecanorae expallentis* crescentia, dispersa vel laxe aggregata, immersa sed erumpentes, subglobosa, atroviridia, 15-60  $\mu\text{m}$  diam. Parietes 3-5  $\mu\text{m}$  crassi, 1-2 stratis cellularum constati, cellulis pseudoparenchymatis, subglobosis ad polyedricis, plerumque 3,5-5  $\times$  1,6-4  $\mu\text{m}$ . Cellulae conidiogenae enteroblasticae, acrogenae, breve ampullaceae vel obpyriformes, phialidicae, non prolificantes, hyalinae, 4-5  $\times$  3-4  $\mu\text{m}$ . Conidia anguste ellipsoidea vel subbacillaria, hyalina, simplicia, laevia, 3,2-5  $\times$  1,2-1,6  $\mu\text{m}$ .

Holotypus : Luxemburgum, Gutland, W Steinfort, L8.51/GR.0505, in thallo *Lecanorae expallentis* ACH., in cortice *Alni*, 10 III 1984, DIEDERICH 5144 (LG). Isotypi : IMI 300094, herb. DIEDERICH.

Pycnidia immersed in the host thallus, partially erumpent at maturity, scattered to loosely aggregated, subglobose, dark green, 15-60  $\mu\text{m}$  in diameter, ostiolate. Pycnidial wall 3-5  $\mu\text{m}$  thick, composed of 1-2 layers of cells ; cells pseudoparenchymatous, subglobose to polyhedral, sub-

hyaline, dark green in the upper part of the pycnidium, mainly  $3.5-5 \times 1.6-4 \mu\text{m}$ . Mycelium subhyaline, dark greenish, with hyphae  $1 \mu\text{m}$  thick. Conidiogenous cells arising from the inner wall of the pycnidium, lining the pycnidial cavity, short ampulliform to obpyriform, hyaline, smooth-walled, phialidic, not proliferating,  $4-5 \times 3-4 \mu\text{m}$ . Conidia abundant, narrowly ellipsoid to almost bacilliform, rounded at the apices, hyaline, simple, guttulate, smooth-walled,  $3.2-5 \times 1.2-1.6 \mu\text{m}$ .

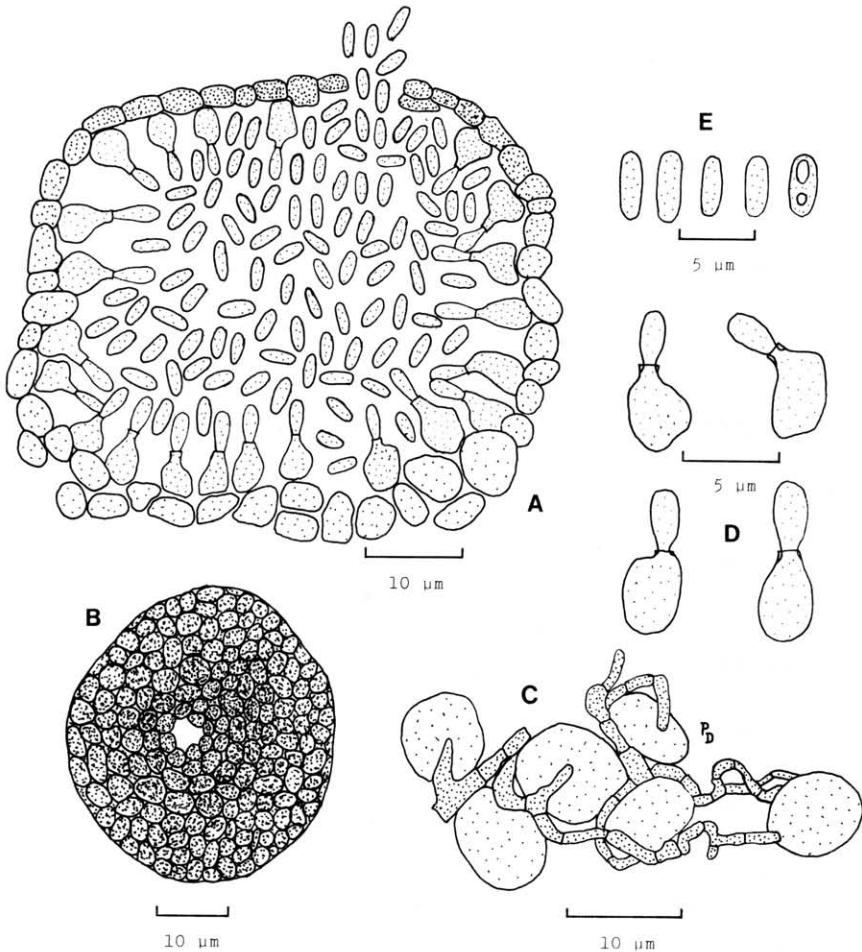


FIG. 8. — *Phoma lecanorina* (LG, holotype): A, section through a pycnidium ; B, surface view of pycnidium ; C, mycelium attacking the algae of the host lichen ; D, conidiogenous cells ; E, conidia.



*Phoma lecanorina* is closely related to *Ph. dubia* (LINDSAY) SACC. & A. TROTTER which has the pycnidial wall thickened (to 8 µm) near the ostiole and golden-brown cells with thicker walls. It is easily separated from the other lichenicolous *Phoma* species by the size and shape of the conidia.

*Phoma lecanorina* is a pathogenic fungus growing on *Lecanora expallens*. The infected area of the lichen thallus turns bluish by the mycelium of the parasite and is rapidly killed.

#### *Vouauxiella lichenicola* (LINDSAY) PETRAK & H. SYDOW

G. D. OF LUXEMBOURG (GUTLAND): Berdorf, Binzeltschloeff, L9.11/LA.0520, *Acer*, on *Lecanora* cf. *chlarotera* NYL., 1984, DIEDERICH 5740; SE Beaufort, Hallerbach, L9.11/LA.0520, *Fagus*, on *Lecanora* cf. *chlarotera*, 1984, DIEDERICH 6061.

This parasite of *Lecanora* sp. is widespread in Europe and also occurs in North America and North Africa.

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