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**Autor:** Ing, Brunce  
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## Corticolous Myxomycetes From Switzerland

Bruce Ing

Department of Biology, University College Chester  
Cheyney Road, Chester CH7 4BJ U.K.

Summary – Bark from living trees at 88 sites in 16 cantons was sampled between 1982 and 1995. A total of 66 species of myxomycetes developed on the bark cultures, of which 27 species appear to be new records for Switzerland.

Résumé – De 1982 à 1995, des Myxomycètes colonisant les écorces d'arbres vivants ont été récoltés dans 88 localités de 16 cantons suisses. 66 espèces se sont développées en culture sur écorce. 27 d'entre elles sont nouvelles pour la Suisse.

During frequent visits to Switzerland over the past few years the opportunity has been taken to collect samples of bark from living trees for subsequent moist chamber culture. The cultures were maintained for a minimum of three months and in the case of some of the physaraceous species for as long as six months. Representative material of all species is held in the author's herbarium and the accession number of important collections is included under species entries.

The myxomycetes which developed are species which are typically found on bark and rarely on other substrates (*obligate corticoles*) but some of these may occasionally be found on newly fallen branches. Several species also regularly occur on other substrates as well (*facultative corticoles*) while a few species typical of dead wood or leaf litter sometimes develop on bark, which acts as a suitable spore trap, usually after several weeks of moist chamber culture (*casual corticoles*.)

Corticolous myxomycetes are nowadays routinely recorded as a result of moist chamber procedures but in the past they were mostly found in the field by collectors (with excellent eyesight) on the bark of living trees. Earlier records made by Charles Meylan in the Jura come into this category – there is no record of his having used the culture technique.

### Localities

The following location codes are cited in the species account – the usual cantonal abbreviations are given. The grid references [xxxx] conform to the notation used in Breitenbach & Kränzlin (1981) and the month and year in which samples were taken is also indicated.

**Aargau**

**AG** 1 – Rheinfelden, trees in park beside River Rhine [2662] (8/94)

**Appenzell, Inner-Rhoden**

- AI** 1 – Ahorn-Kappell, mixed submontane forest [2374] (7/95)  
2 – Brülisau, montane *Picea* forest [2375] (7/95)  
3 – Kromberg-Scheidegg, montane *Picea* forest [2474] (7/95)  
4 – Wasserauen, mixed submontane forest [2375] (7/95)  
5 – Weissbad, mixed submontane forest [2475] (7/95)

**Bern**

- BE** 1 – Wengen, montane *Picea* forest [1663] (4/82)  
2 – Bern: Tierpark, mixed forest beside River Aare [1960] (12/90, 2 and 5/91)  
3 – Köniz: Gurtenwald, mixed lower montane forest [1959] (2 and 5/91, 8/92, 1/93)  
4 – Meiringen, Reichenbachfälle, mixed forest [1765] (5/91)  
5 – Meiringen-Lammi, mixed forest [1765] (5/91, 7/92)  
6 – Bern: Rosengarten, roadside trees [2060] (6/91)  
7 – Simmental: Erlenbach, roadside trees [1660] (6/91)  
8 – Simmental: Stockhorn, montane *Picea* forest [1760] (6/91)  
9 – Grindelwald, roadside trees and montane *Picea* forest [1664] (6/91, 8/92)  
10 – Grindelwald: Obergletscher, mixed forest [1664] (6/91)  
11 – Simmental: Lenk, roadside trees [1459] (7/92, 6/94)  
12 – Simmental: Oberwil, trees beside River Simme [1759] (7/92, 2/93)  
13 – Mürren, roadside trees [1563] (8/92)  
14 – Lauterbrunnen, roadside trees [1663] (8/92)  
15 – Köniz: Wabern, roadside trees [1959] (8/92)  
16 – Belp, trees beside River Aare [1960] (1/93)  
17 – Oberbalm, roadside trees [1959] (1/93)  
18 – Borisried, roadside trees [1859] (1/93)  
19 – Beatenberg, lower montane mixed forest [1762] (1 and 7/93)  
20 – Mittelhäusern:Schwarzwasserbrücke, mixed forest [1859] (1/93)  
21 – Köniz: Spiegel, park trees [1959] (7/93)  
22 – Köniz: Liebefeld, roadside trees [1959] (7/93)  
23 – Bern: Könizbergwald, mixed forest [1959] (7/93)  
24 – Gurnigel, montane *Pinus* forest [1760] (7/93)  
25 – Gampelen: Seewald, alluvial forest on shore of Lac de Neuchâtel [2056] (9/93)  
26 – Simmental: Zweisimmen, roadside trees [1559] (6/94)

- 27 – Kandertal: Mülenen, roadside trees [1661] (6/94)
- 28 – Emmental: Blapbach, mixed forest [1962] (7/94)
- 29 – Kandertal: Kandersteg, roadside trees [1461] (7/94)
- 30 – Interlaken, roadside trees [1663] (7/95)
- 31 – Spiez, roadside trees [1761] (7/95)
- 32 – Thun, roadside trees [1761] (7/95)

### **Fribourg**

- FR 1 – Fribourg, trees in park [1857] (2/93)
- 2 – Gruyères, mixed deciduous woodland [1557] (7/95)
- 3 – Murten, roadside and lakeside trees [1957] (7/95)

### **Genève**

- GE 1 – Genève, park trees by Palais des Nations [1249] (10/85, 1/93)
- 2 – Genève, trees in Jardin Botanique [1250] (1/93)

### **Graubünden**

- GR 1 – Zernez, montane forest [1780] (7/93)
- 2 – Swiss National Park, montane *Pinus* forest [1781] (7/93)
- 3 – Engiadina Bassa: Susch, roadside trees [1880] (7/93)
- 4 – Engiadina Bassa: Tarasp, montane forest [1882] (7/93)
- 5 – Engiadina Ota: Sils, trees at lakeside [1477] (7/93)
- 6 – Arosa, montane *Picea/Pinus* forest [1877] (8/94)

### **Jura**

- JU 1 – Delémont, roadside trees [2459] (7/95)
- 2 – near La Lucelle, roadside trees [2558] (7/95)

### **Luzern**

- LU 1 – Luzern, trees at lakeside [2166] (8/93)
- 2 – Pilatus: Fräkmünt, montane *Picea* forest [2066] (8/93)
- 3 – Weggis, lakeside trees [2067] (7/92)

### **Neuchâtel**

- NE 1 – Les Geneveys -s.C: Le Louverain, mixed montane forest [2055] (9/93)
- 2 – Corcelles, mixed *Fagus/Quercus* forest [2055] (9/93)
- 3 – Le Landeron, lakeside trees [2157] (7/95)

### **Nidwalden**

- NW 1 – Untertrübsee, near Engelberg, montane *Picea* forest [1867] (8/95)

**Obwalden**

**OW** 1 – Engelberg, mixed submontane forest [1867] (8/95)

**St Gallen**

**SG** 1 – Ebnat-Kappel, trees beside River Thur [2372] (7/93)  
2 – Altstätten, roadside trees [2475] (7/95)

**Schaffhausen**

**SH** 1 – Stein am Rhein, riverside and roadside trees [2770] (7/95)

**Solothurn**

**SO** 1 – Weissenstein, mixed forest [2360] (8/93)  
2 – Solothurn, roadside trees [2260] (7/94)

**Ticino**

**TI** 1 – Lugano, lakeside and park trees [0971] (7/93, 8/95)  
2 – Val Leventina: Giornico, roadside trees [1371] (7/94)  
3 – Biasca, roadside trees and *Castanea* forest [1371] (8/94)  
4 – Bellinzona, park trees at Castello Grande [1172] (8/94)  
5 – Locarno, lakeside trees [1170] (8/94)  
6 – Isole di Brissago, trees in Botanical Garden [1070] (8/94)  
7 – Val Pontirone, *Castanea* forest and roadside trees [1372] (8/94)  
8 – Acquacalda, montane *Picea* forest [1570] (8/94)  
9 – Castagnola, Lugano, Arboretum [0971] (8/95)  
10 – Gandria, garden trees and *Quercus pubescens* forest [0972] (8/95)  
11 – Morcote, mixed woodland on lakeshore [0871] (8/95)

**Vaud**

**VD** 1 – Ste-Croix, montane *Picea* forest [1852] (5/91)  
2 – Château de Chillon, lakeside trees [1456] (7/92)  
3 – Lausanne, park trees [1553] (2/93)  
4 – Creux-du-Van, montane *Picea* forest [1954] (9/93)  
5 – Les Plans, Bex, submontane forest [1257] (8/63)

**Valais**

**VS** 1 – Lötschental: Blatten, montane forest [1462] (2/93)  
2 – Lötschental: Fafleralp, montane forest [1463] (2/93)  
3 – Zermatt: Riffelalp, *Pinus cembra* forest [0962] (6/94)  
4 – Zermatt: Obermoos, montane forest [0962] (6/94)  
5 – Zermatt, park and garden trees [0962] (7/94)  
6 – Zmutt: Stafelalp, *Pinus cembra* forest [0961] (7/94)

## Zürich

- ZH** 1 – Zürich, lakeside trees [2468] (2/93)  
2 – Rheinfall-Laufen, mixed deciduous forest [2868] (7/95)

## List of species

An asterisk before a species name indicates a probable first record for Switzerland. Letters after the name refer to the ecological strategy – A: obligate corticole, B: facultative corticole, C: casual corticole.

Where possible some comment on the European distribution is given, especially in relation to those countries bordering Switzerland. The information is based on publications, including several still in press, and unpublished data from the author's own field work and herbarium.

Austria, France and Germany – Neubert, Nowotny & Baumann (1993,1995); Ing & McHugh (in press)

France – Mitchell & Nannenga-Bremekamp (1976)

Netherlands – Nannenga-Bremekamp (1974, 1983)

British Isles – Ing (1980, 1995)

Croatia, Montenegro – Ing (in press)

Turkey – Ing (in press)

Belize – Ing & Haynes (in press)

General distribution data – Lister (1925)

## Acrasiomycetes

**\*Pocheina rosea** (Cienk.)Loeblich & Tappin (A)

**AI** 1, 3, 5; **BE** 3, 5–7, 26, 27; **GE** 1; **GR** 6; **JU** 1; **LU** 3; **VD** 2; **VS** 1,2; **ZH** 1.

On *Acer platanoides*, *A. pseudoplatanus*, *Aesculus hippocastanum*, *Fraxinus excelsior*, *Larix decidua*, *Morus alba*, *Picea abies*, *Populus nigra*, *Quercus petraea*, *Tilia x vulgaris* and *Ulmus glabra*. Widespread and usually common in Europe on acid-barked trees, or those with neutral or alkaline bark in polluted areas.

## Myxomycetes

**Arcyria cinerea** (Bull.)Pers. (B)

**BE** 2, 3, 9, 16, 21; **GE** 1; **GR** 5; **LU** 1; **NE** 1, 2; **TI** 1, 2, 4, 5, 10; **VD** 3.

On *Abies alba*, *Cupressus sempervirens*, *Ginkgo biloba*, *Larix*, *Pyrus communis*, *Q. petraea*, *Q. pubescens*, *Robinia pseudacacia*, *Salix alba* and *Tilia*. A common and widespread species on bark and rotten wood; recorded from all neighbouring countries.

**A. pomiformis** (Leers) Rost. (B)

BE 2, 3, 15, 21; GE 1; LU 1; NE 1, 2; SO 2; TI 1, 10; VD 3; ZH 1.

On *Abies*, *Aesculus*, *Cupressus*, *Pyrus*, *Q. petraea*, *Q. pubescens*, *Salix*, *Tilia* and *Ulmus*. A common and widespread species on bark and also on fallen sticks and branches; recorded in all neighbouring countries.

**Badhamia affinis** Rost. (A)

AG 1; AI 4; BE 3, 9, 11–13, 16, 19, 26, 28, 29, 31; FR 2, 3; GE 1; GR 4; LU 3; OW 1; TI 7, 11; VD 2, 5.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Fraxinus*, *Juglans regia*, *Larix*, *Populus nigra*, *P. tremula*, *Q. petraea*, *Q. pubescens*, *Salix*, *Tilia* and *Ulmus*. Widespread but not common, except in montane regions of the temperate zone; recorded in Austria, France and Germany

**B. capsulifera** (Bull.) Berk. (A)

BE 3, 17, 26.

On *A. platanoides* and *Tilia*. The last collection corresponds to the var. *arboorea* G. Lister. Not common but widespread, usually found on recently fallen branches but nevertheless a strict corticole, less common on trunks; recorded in all neighbouring countries.

**B. foliicola** Lister (B)

GR 6; JU 2; OW 1; VS 5.

On *A. pseudoplatanus*, *Picea*, *P. tremula* and *Salix*. Common in grassland, both lowland and alpine, but not uncommon on bark of living trees; recorded in all neighbouring countries. Mitchell & Nannenga-Bremekamp (1976) described *B. delicatula* from mossy bark of a fallen oak log from France. This is clearly very close to *foliicola* but the Swiss bark gatherings listed above were not the new species, although it is possible that some bark records from other parts of Europe (including the British Isles) may be better referred to as *delicatula*.

**B. nitens** Berk. (A)

BE 26.

On *A. pseudoplatanus*. This is the var. *reticulata* (Berk. & Br.) G. Lister which is typically corticolous, the var. *nitens* being associated with poroid fungi on tree trunks. Generally rare but widespread and recorded from all neighbouring countries.

**B. versicolor** Lister (A)

BE 12; JU 2.

On *A. pseudoplatanus* and *Tilia*. A rare species on bryophytes on trees; recorded from all neighbouring countries.

**\*Badhamiopsis ainoae** (Yamashiro)Brooks & Keller (A)

On *Tilia*. A rare species with few records in Europe – known also from France, Spain, Scotland, Turkey, Israel, Japan and North America. [Hb. Ing 92046]

**Calomyxa metallica** (Ber.)Niewland (A)

AI 4, 5; BE 2, 12; GE 2; JU 1; LU 3; VD 2.

On *Fraxinus*, *Morus*, *Populus nigra*, *P. tremula*, *Q. petraea* and *Tilia*. Widespread and frequent on living trees, uncommon on recently fallen branches; recorded in all neighbouring countries.

**Colloderma oculatum** (Lipp.)G. Lister (B)

BE 17, 26, 28; TI 6.

On *A. pseudoplatanus*, *Q. petraea* and *Salix*. Associated with cyanobacteria on tree bark and also found on fallen trunks and wet, bryophyte-covered rocks, always, seemingly, associated with cyanobacteria. Widespread but never common; recorded from Austria, France and Germany.

**Comatricha brachypus** (Meylan)Meylan (B)

BE 17.

On *Q. petraea*. A rare species originally found on fallen branches, this is the first record in the corticolous habitat. This species was collected in the Jura on several occasions by Meylan but is not recorded with certainty outside Switzerland. It may be better referred to *Stemonitopsis*. [Slides in Hb. Ing]

**\*C. ellae** Harkonen (A)

GE 1.

On *Quercus robur*. A rare species previously known only from northern and western Europe, including France. [Slide in Hb. Ing]

**C. fragilis** Meylan (B)

VS 6.

On *Pinus cembra*. A rare species described from rotting wood in the Jura and also found on wood in Germany, the Netherlands and Poland. The only other collection from bark is from the Orkney Islands, Scotland.

[Hb. Ing 94211]

**C. laxa** Rost. (B)

BE 10; GR 6.

On *A. pseudoplatanus* and *Picea*. Frequently found on bark but more usually on fallen branches; widespread and recorded in all neighbouring countries.



**C. nigra** (Pers.)Schroet. (C)

AI 3; BE 2; GR 2; TI 6; VS 6.

On *Larix*, *Picea*, *Pinus griffithii* and *P. uncinata*. A very common, cosmopolitan species on dead wood of all kinds, occasionally found on living trees, especially conifers; recorded in all neighbouring countries.

**\*C. rigidireta** Nann.-Brem. (A)

VS 1.

On *Larix*. A rare species of acid-barked trees; also known from France, Italy, the Netherlands and the British Isles. [Hb. Ing 93018]

**Craterium leucocephalum** (Pers.)Ditm. (C)

GR 6.

On *Picea*. A widespread and frequent species of leaf litter, this appears to be the first record on tree bark. The collection developed after the bark sample had been in culture for three months and was thought to be a red-stalked *Diderma* until examined under the microscope. The sporangia lack the lids typical of the species and are globose rather than cylindrical; the collection may be referred to var. *scyphoides* (Cooke & Balf.)G. Lister. The species is recorded in all neighbouring countries. [Hb. Ing 94215]

**Cribraria violacea** Rex (B)

AI 5; BE 9, 26, 31; JU 1; SG 2.

On *A. pseudoplatanus*, *Fraxinus*, *Morus* and *Tilia*. Widespread and frequent on tree bark but also found on fallen branches; recorded in all neighbouring countries.

**Diderma chondrioderma** (de Bary & Rost.)G. Lister (A)

BE 3, 5, 13, 16, 28; JU 1; LU 3; TI 10; VD 2.

On *A. pseudoplatanus*, *Fraxinus*, *Malus sylvestris*, *Populus nigra*, *Q. petraea* and *Tilia*. Widespread and common on bryophyte-covered bark recorded from Austria, France and Germany.

**D. effusum** (Schw.)Morg. (C)

TI 1, 3, 4.

On *Aesculus*, *Castanea sativa* and *Tilia*. A widespread litter species, often in limestone areas, but occasionally develops on bark in moist chambers, usually after several weeks of culture, and more especially in Mediterranean environments so that the Ticino records are not surprising; recorded in all neighbouring countries.

**D. hemisphaericum** (Bull.)Hornem. (C)

BE 13; NE 3.

On *A. pseudoplatanus* and *Populus nigra*. A frequent species of damp herbaceous litter but occasionally develops on bark in moist chamber after several weeks of culture; recorded in all neighbouring countries.

**Didymium difforme** (Pers.)S. F. Gray (C)

AI 1; BE 30; FR 2; VD 4.

On *A. pseudoplatanus*, *Juglans* and *Picea*. One of the commonest litter myxomycetes which occasionally develops on bark in moist chamber. This species develops much more quickly, usually within two weeks of placing the bark in the chamber, and is perhaps more commonly associated with younger bark; recorded in all neighbouring countries.

**D. squamulosum** (Alb. & Schw.)Fr. (C)

AI 1.

On *A. pseudoplatanus*. Another very common litter species, but very rare on bark; recorded in all neighbouring countries.

**\*Echinostelium brooksii** Whitney (A)

AI 1, 3; BE 2, 11, 18, 19, 23; GE 1, 2; GR 5; VD 4.

On *A. pseudoplatanus*, *Catalpa bignonioides*, *Larix*, *Picea* and *Q. petraea*. Widespread in Europe on acid-barked trees, often those which are isolated, as in parks; recorded from Austria, France and Germany.

[Slides in Hb. Ing]

**\*E. colliculosum** Whitney & Keller (A)

AI 1–3; BE 2, 8, 9, 23, 32; FR 2; GE 1, 2; GR 4, 5; LU 2; NW 1; SO 1; TI 1, 2, 8; VD 1; VS 1; ZH 1.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Catalpa*, *Fagus sylvatica*, *Fraxinus*, *Larix*, *Picea*, *Pinus sylvestris*, *Q. petraea*, *Robinia* and *Ulmus*. A common and widespread species; recorded from Austria and France. The closely related *E. vanderpoelii* Nann.-Brem., Mitchell, Lakhanpal & Chopra is sometimes confused with *colliculosum* – it has not yet been recorded from Switzerland. [Slides in Hb. Ing]

**\*E. corynophorum** Whitney (A)

BE 24; LU 2; TI 5, 8; VS 1, 4.

On *Ginkgo*, *Larix*, *Picea* and *P. uncinata*. A widespread and frequent species, but apparently less common than others in the genus; recorded from Austria and France. [Slides in Hb. Ing]

**\*E. fragile** Nann.-Brem. (A)

BE 2, 3, 9; GR 1; VS 5; ZH 1.

On *A. pseudoplatanus*, *Larix*, *Populus nigra*, *P. tremula*, *Pyrus* and *Ulmus*. Widespread and common on isolated trees with less acid bark than those favoured by *E. brooksii* which it resembles at low magnification; recorded from Austria, France and Germany. [Slides in Hb. Ing]

**E. minutum** de Bary (A)

BE 2, 3, 6, 13, 23; GE 2; GR 4; SH 1; SO 1; TI 5, 8, 9; VD 2.

On *A. pseudoplatanus*, *Aesculus*, *Catalpa*, *Ginkgo*, *Larix*, *Olea europaea*, *Picea*, *Pinus nigra* and *Q. petraea*. Common and widespread on bark of all kinds and, very occasionally, on other substrates; recorded in all neighbouring countries.

**Enerthenema papillatum** (Pers.) Rost. (B)

BE 2, 6, 19, 23, 30; FR 2, 3; GE 1; GR 1; JU 1; NE 3; ZH 1, 2.

On *A. pseudoplatanus*, *Aesculus*, *Morus*, *Picea*, *Populus nigra*, *Q. robur* and *Tilia*. Very common on acid-barked trees, including those in urban areas, and also found on fallen conifer and *Quercus* branches; recorded in all neighbouring countries.

**\*Hemitrichia minor** G. Lister (B)

BE 19; LU 3.

On *A. pseudoplatanus* and *Populus nigra*. Uncommon on hepatic-covered bark, thus usually in damp habitats, and also found on hepatic-covered branches on the forest floor. Not common in Europe and recorded only in France and Germany among neighbouring countries. [Slides in Hb. Ing]

**\*Licea belmontiana** Nann.-Brem (A)

AI 2; BE 5, 9, 16, 28; FR 2; GR 4; LU 3; NE 3; TI 1.

On *A. pseudoplatanus*, *Aesculus*, *Fraxinus*, *Larix*, *Populus nigra*, *Tilia* and *Ulmus*. Frequent on bark, usually associated with bryophytes; recorded from Austria and Germany. [Slides in Hb. Ing]

**\*L. biforis** Morgan (A)

BE 16.

On *Fraxinus*. Rare in Europe, except in more oceanic areas but recorded from Austria, France and Germany.

[Hb. Ing 93019]

**\*L. bryophila** Nann.-Brem. (A)

AI 4; BE 9, 17, 28; TI 11.

On *Aesculus*, *Fraxinus* and *Ulmus*. Rare in Europe and usually associated with hepatics, especially *Metzgeria*, in oceanic areas; described from France. [Slides in Hb. Ing]

**\*L. chelonoides** Nann.-Brem. (A)

BE 16.

On *Q. petraea*. A rare species, usually associated with thick-barked trees; also known from Germany.

[Slide in Hb. Ing]

**\*L. denudescens** Keller & Brooks (A)

BE 9, 10, 14, 16, 17, 23, 26, 28, 32; FR 2, 3; GE 1; LU 1, 3.

On *A. pseudoplatanus*, *Aesculus*, *Fraxinus*, *Populus nigra*, *Q. petraea*, *Q. robur*, *Salix*, *Tilia* and *Ulmus*. Widespread and frequent on lichen-covered bark, but easily overlooked. Recorded from Austria and France among neighbouring countries. [Slides in Hb. Ing]

**\*L. gloeoderma** Dobbler & Nann.-Brem. (A)

BE 3, 9.

On *A. platanoides* and *Ulmus*. A rare, probably overlooked, species associated with *Frullania* on hepatic-covered bark in more oceanic regions; also known from Germany. [Slides in Hb. Ing]

**\*L. inconspicua** Brooks & Keller (A)

BE 3, 7, 9, 16; GR 4; JU 1; TI 8.

On *Fraxinus*, *Larix*, *Picea*, *Q. petraea*, *Tilia* and *Ulmus*. Widespread and frequent on lichen-covered bark but not recorded in neighbouring countries. [Slides in Hb. Ing]

**L. kleistobolus** Martin (A)

AG 1; AI 5; BE 3, 6, 7, 9, 19, 23, 27; FR 2; GR 4; JU 3; SG 2; SH 1; SO 2; TI 1, 3, 7, 9, 11; VD 2; ZH 1.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Castanea*, *Larix*, *Malus domestica*, *Olea*, *Picea*, *Pinus nigra*, *Pterocarya fraxinifolia*, *Q. petraea*, *Robinia*, *Taxus baccata*, *Tilia* and *Ulmus*. A common and widespread species found on bark which is usually bare of bryophytes or lichens and may be thin, as in younger trees; recorded from Austria, France and Germany.

**\*L. marginata** Nann.-Brem. (A)

AI 1, 4, 5; BE 2, 3, 5, 6, 9, 10, 14, 16, 17, 19, 28; FR 2; JU 1; NE 2; SO 1, 2.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Fraxinus*, *Picea*, *Populus nigra*, *Pyrus*, *Q. petraea*, *Tilia* and *Ulmus*. Common and widespread but very small and easily overlooked; known also from France and Germany. [Slides in Hb. Ing]

**L. minima** Fr. (A)

BE 27; LU 1; TI 3, 8.

On *Aesculus*, *Juglans* and *Salix*. A common and widespread species characteristic of thick-barked trees in lowland forest, also found occasionally on fallen wood and bracket-fungi; recorded from all neighbouring countries.

**L. operculata** (Wingate)Martin (A)

NE 3.

On *Populus nigra*. Widespread and scattered in Europe, avoiding the more oceanic regions; recorded from Austria and Germany.

**L. parasitica** (Zukal)Martin (A)

AG 1; AI 1, 4, 5; BE 2, 3, 5–7, 9–11, 16, 17, 19–23, 26–28, 30–32; FR 2, 3; GE 1; GR 5; JU 1; LU 1, 3; NE 1–3; OW 1; SG 2; SO 1, 2; TI 1–4, 6–11; VD 1, 2, 4; ZH 1, 2.

On *Abies*, *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Castanea*, *Catalpa*, *Cupressus*, *Fraxinus*, *Larix*, *Liquidambar styraciflua*, *M. domestica*, *Picea*, *Pinus nigra*, *Populus nigra*, *Pterocarya*, *Pyrus*, *Robinia*, *Q. petraea*, *Q. pubescens*, *Q. robur*, *Salix*, *Tilia* and *Ulmus*. As these records suggest, this is the commonest member of the genus and occurs on a wide range of tree species in most kinds of forest. It is most common where the bark is covered with bryophytes and lichens where the characteristic microcysts are as familiar as the sporangia, which resemble miniature meat pies in shape. Recorded in all neighbouring countries.

**\*L. pedicellata** (H. C. Gilb.)H. C. Gilb. (A)

BE 26; TI 1, 4.

On *Aesculus*, *Fraxinus* and *Tilia*. A rare species, perhaps sometimes mistaken for other taxa; recorded from Austria and France. [Slides in Hb. Ing]

**\*L. perexigua** Brooks & Keller (A)

GR 4.

On *Larix*. A rare species, usually on thin bark of conifers and *Taxus*; also known from Austria.

[Slide in Hb. Ing]

**L. pygmaea** (Meylan)B. Ing (A)

AI 1, 5; BE 17.

On *Fraxinus* and *Picea*. Associated with lichens this is rarely recorded, perhaps because of its small size. Originally described from the Jura, as a variety of *L. pusilla*, it is now known from the British Isles, the Netherlands, Austria and Germany.

**\*L. scyphoides** Brooks & Keller (A)

BE 3, 5, 28; TI 7.

On *A. pseudoplatanus*, *Castanea*, *Q. petraea* and *Tilia*. Widespread but generally uncommon and usually associated with bark well covered with epiphytes in more oceanic sites. Only recorded from France of the neighbouring countries. [Slides in Hb. Ing]

**Macbrideola cornea** (G. List. & Cran)Alex. (A)

AG 1; AI 2, 4, 5; BE 3–5, 7, 9, 11–14, 16, 18, 19, 21, 22, 26, 28, 30, 31; FR 2, 3; GR 1, 3; JU 1, 2; LU 1, 3; NE 2; OW 1; SG 1, 2; TI 2, 7; VD 2.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Alnus glutinosa*, *Castanea*, *Fraxinus*, *Juglans*, *Larix*, *Morus*, *Picea*, *Populus nigra*, *Pyrus*, *Q. petraea*, *Robinia*, *Salix*, *Tilia* and *Ulmus*. A very common species, almost always on epiphytic bryophytes, and therefore characteristic of moister forests and less polluted areas; recorded from Austria, France and Germany.

**\*M. macrospora** (Nann.-Brem.)B. Ing (A)

FR 3.

On *Salix*. A rarely recorded species, separated from *cornea* on spore size and markings as well as its more robust habit. Known elsewhere from the British Isles, France and Austria. [Slide in Hb. Ing]

**\*M. synsporos** (Alex.)Alex. (A)

BE 16; GR 3.

On *A. platanoides* and *Q. petraea*. A rare species from drier sites, not associated with bryophytes. Originally described from Greece and known from France, Spain, Turkey, Montenegro and the British Isles, but always rare. [Slides in Hb. Ing]

**\*Paradiacheopsis cribrata** Nann-Brem. (A)

BE 6, 9, 18, 28; GE 1; GR 1; LU 1; TI 7; VD 4; VS 3.

On *Aesculus*, *Larix*, *Picea*, *P. cembra*, *Q. robur*, *Salix* and *Ulmus*. A widespread and frequent species on less acid bark in more humid sites; also recorded from France. [Slides in Hb. Ing]

**P. fimbriata** (G. List. & Cran) Hertel (A)

AG 1; AI 4; BE 2, 3, 6, 9, 11–15, 28, 30; FR 1; GE 1; GR 1, 6; JU 2; LU 2; NE 3; SH 1; TI 6; VD 2; VS 2–4, 6; ZH 2.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Juglans*, *Larix*, *Picea*, *P. cembra*, *P. griffithii*, *P. sylvestris*, *P. uncinata*, *Populus nigra*, *Q. robur*, *Tilia* and *Ulmus*. A very common species of acid-barked trees, even in the polluted air of towns. In open country and in the mountains it is more restricted to conifers; recorded in all neighbouring countries.

**P. rigida** (Brändzâ) Nann.-Brem. (A)

BE 1.

On *Picea*. A rare species but scattered and with no obvious pattern to its distribution, it has been recorded from Austria, Slovakia, Greece and the British Isles within Europe, from Morocco and, recently, from Belize in Central America. [Hb. Ing 81058]

**\*P. solitaria** (Nann.-Brem.) Nann.-Brem. (A)

AG 1; AI 3; BE 2, 6, 16–19, 23, 30, 32; FR 2, 3; GR 1, 6; JU 2; SH 1; SO 1; TI 2, 6, 7; VD 4; VS 3, 6.

On *A. pseudoplatanus*, *Aesculus*, *Castanea*, *Larix*, *M. domestica*, *Picea*, *P. cembra*, *P. griffithii*, *P. uncinata*, *Populus nigra*, *Q. petraea*, *Robinia*, *Salix* and *Tilia*. A common and widespread species, perhaps commoner in older woodland and often absent from urban trees and more acid bark; recorded in all neighbouring countries. [Slides in Hb. Ing]

**Perichaena chrysosperma** (Currey) List. (B)

AG 1; AI 4, 5; BE 3, 5, 9, 11, 12, 14, 16, 17, 26, 30, 32; FR 2, 3; JU 1; LU 3; OW 1; SG 1; TI 3, 10.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Alnus*, *Fraxinus*, *Juglans*, *M. sylvestris*, *Morus*, *Populus nigra*, *Q. petraea*, *Q. pubescens*, *Tilia* and *Ulmus*. Common and widespread on bark, especially if less acid and usually with epiphytes, occasionally found on dead wood on the forest floor; recorded in all neighbouring countries.

**Physarum auriscalpium** Cooke (B)

AG 1; AI 1; BE 3, 16; FR 2, 3; GR 3; JU 1; TI 11; VD 2.

On *A. platanoides*, *Aesculus*, *Fagus*, *Fraxinus*, *Q. pubescens*, *Q. robur*, *Salix* and *Tilia*. Widespread and frequent; often associated with lichens on bark but also found on fallen branches. Recorded from France, Italy and Germany.

**\*P. bethelii** Macbr. (B)

BE 25; LU 1; TI 1.

On *Aesculus*, *Populus nigra* and *Pterocarya*. A rare species usually associated with bryophytes on bark and also found on mossy logs; rare in Europe and recorded from Austria, Germany, Italy, the Netherlands, Romania, Spain and the British Isles. [Hb. Ing 92068, 92130]

**P. compressum** Alb. & Schw. (C)

BE 11.

On *A. pseudoplatanus*. Rarely found on bark, this is a species of herbaceous plant litter, including crop residues, where it is common and widespread; recorded in all neighbouring countries.

**\*P. crateriforme** Petch (B)

BE 18; FR 3; TI 11.

On *Fraxinus*, *Q. pubescens* and *Salix*. An uncommon species on less-acid bark, occasionally found on fallen branches; not recorded in neighbouring countries. [Hb. Ing 93013, 95293]

**P. decipiens** Curtis (B)

AI 1; BE 12, 14, 16, 19, 26, 30; FR 2, 3; JU 1; LU 3.

On *A. platanoides*, *A. pseudoplatanus*, *Aesculus*, *Fraxinus*, *Juglans*, *Morus*, *Populus nigra* and *Tilia*. Frequent and widespread although confused with both *P. auriscalpium* and *P. serpula* so the true distribution pattern is not clear but recorded reliably from France and Germany.

**P. leucophaeum** Fr. (C)

BE 2, 9, 11.

On *A. pseudoplatanus*, *Q. petraea* and *Ulmus*. Uncommon as a casual on bark but a very common species on fallen wood; recorded in all neighbouring countries.

**P. pusillum** (Berk. & Curt.)G. List. (B)

FR 3; TI 6.

On *Liquidambar* and *Salix*. A frequent species on bark but equally common on grass litter, including *Ammophila* and *Phragmites* in some regions of Europe; recorded in all neighbouring countries.

**P. serpula** Morgan (B)

BE 5, 22, 26; FR 3.

On *Populus nigra* and *Tilia*. A rare species, mostly on thick-barked trees or fallen branches; recorded from Austria, France and Croatia.



**\*Stemonitopsis amoena** (Nann.-Brem.)Nann.-Brem. (B)

TI 11.

On *Aesculus*. A rare species, scattered in Europe, especially in the north and west; usually corticolous but occasionally on small, fallen branches. [Slide in Hb. Ing]

**Trichia lutescens** Lister (B)

BE 20.

On *Fraxinus*. An uncommon species, mostly on bark but also on fallen wood; recorded from France, Germany and Italy

**T. munda** (List.)Meylan (B)

BE 2; LU 1; NE 2; TI 11.

On *Q. petraea*, *Q. pubescens* and *Salix*. Frequent on bryophytes on bark, rare on fallen wood; recorded from Austria, France and Germany.

Although the collection of bark samples has been limited by itineraries planned to facilitate research on snowline myxomycetes and to vacations, a broad coverage of Switzerland from north to south and from east to west has been attempted. From the records presented here it is clear that some species are to be found almost everywhere within the forest zone whereas others are rare and perhaps associated with either southern or more oceanic locations. It is also clear that non-indigenous trees planted for ornament, shelter or timber are just as useful in providing substrates for bark myxomycetes as native species. Roughness, water holding capacity and pH are probably more important than species of tree bark in determining the suitability for myxomycete growth.

Further sampling of bark is planned, with emphasis on the hitherto unrecorded cantons, as well as in further sites generally. As 95% of all bark samples produce at least one, and on average more than three, species of myxomycete this is likely to increase the number of corticolous species recorded from Switzerland.

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