

CORTICOLOUS MYXOMYCETES FROM AUSTRIA

BRUCE ING

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Summary: 40 species of myxomycetes were cultured from the bark of living trees collected in the Austrian Tirol. Most were widespread species but nine appear to be first published records for Austria and *Arcyodes incarnata* has not previously been isolated from bark of living trees.

While visiting Austria in June 1987 Roland McHugh collected samples of tree bark. These were subsequently cultured in moist chambers, set up in early July. Over the following five months myxomycete sporocarps were harvested and identified. Specimens and slides are retained in Hb. McHugh and Hb. Ing.

Collecting sites

1. Near Fügen, Tirol – *Populus nigra* trees by River Ziller.
2. Zell-am-Ziller, Tirol – *Malus* trees on farmland.
3. Near Eben, Tirol – *Malus* trees near viewpoint over the Inn valley on road to Achensee.
4. Wörgl, Tirol – *Acer pseudoplatanus* trees as west end of town.
5. as 4, but on *Quercus* trees.
6. Matrei, Ost-Tirol – *Populus nigra* trees at northern edge of town.
7. Iselburg, Karnten – *Quercus* trees at roadside.
8. Hellbrunn Castle, Salzburg – *Quercus* trees in parkland.

Species marked with an asterisk appear to be new records and are not included for Austria by Neubert, Nowotny & Baumann (1993) or Neubert, Nowotny, Baumann & Marx (1995, 2000.) Comments on distribution are taken from these three books and Ing (1999.)

Arcyodes incarnata (Alb.& Schwein.) O.F.Cook

1,2, on *Populus* and *Malus*. This appears to be the first record of this species growing on the bark of living trees – it is normally associated with partly submerged wood in wetland ecosystems.

Arcyria cinerea (Bull.) Pers.

2,4,5,8, on *Acer*, *Malus* and *Quercus*. One of the common species of corticolous myxomycetes; cosmopolitan.

Badhamia affinis Rostaf.

2, on *Malus*. Common in alpine valleys, especially in Switzerland (Ing, 1997) as well as in the more Atlantic parts of western Europe.

Badhamia capsulifera (Bull.) Berk.

1,2, on *Populus* and *Quercus*. Not a common species and sometimes found on newly fallen branches. This species is far more common on branches than trunks.

Badhamia foliicola Lister

4,6, on *Acer* and *Populus*. A common species on living grasses, including lawns, but also frequent on living trunks.

Badhamia panicea (Fr.) Rostaf.

2,6, on *Malus* and *Populus*. A common species on fallen trunks but rarely met in bark cultures.

Calomyxa metallica (Berk.) Niewland

4,8, on *Acer* and *Quercus*. Frequent on bark of older trees, even in cities (Ing, 1998.)

***Clastoderma pachypus** Nann-Bremek.

8, on *Quercus*. This species has a western, indeed Atlantic, distribution in Europe and is more or less confined to alpine valleys in central Europe, occurring rarely in Switzerland, for example (Ing, 1999a.) The illustration of *Clastoderma microcarpum* (Meylan) Kowalski in *Die Myxomyceten* 1 looks remarkably like the present species and is listed from Austria. Perhaps the two taxa are not distinct.

Colloderma oculatum (Lippert) G. Lister

1,2, on *Malus* and *Populus*. Widespread in Europe, but never common. It is usually associated with bryophytes on the bark and also occurs on wet rocks and rotten logs with a good cover of bryophytes and cyanobacteria.

Comatricha laxa Rostaf.

7,8, on *Quercus*. Widespread and frequent on fallen wood but less common on bark. A small form often occurs with more typical collections on bark but does not appear to differ except in size.

Cribraria violacea Rex

2, on *Malus*. Widespread in Europe but never a common species; it can be abundant on apple bark.

***Diderma chondrioderma** (de Bary & Rostaf.) G. Lister

5, on *Quercus*. Frequent in Europe but scattered and irregular in times of appearance, usually associated with bryophytes on bark; recorded from Germany and Switzerland.

Diderma effusum (Schwein.) Morgan

3, on *Malus*. A common species of broad-leaved litter, but like the next species, and possibly the *Arcyodes*, may develop in moist chambers from trapped spores, if the cultures are maintained for several months, as in this case.

Diderma hemisphaericum (Bull.) Hornem.

6,7, on *Quercus*. A species characteristic of plant litter in damp places, but see note under previous species.

***Echinostelium apitectum** K.D. Whitney

7, on *Quercus*. This species has recently been synonymised with *E. vanderpoelii* Nann.-Brem., D.W. Mitchell, T.N. Lakh. & R.K. Chopra (Lado & Pando, 1997.) It is mostly found in western Europe and the Mediterranean region but has recently been found in Switzerland (Ing, 1999a.)

Echinostelium brooksii K.D. Whitney

5, on *Quercus*. A common species on exposed trees in parkland and also very characteristic of alpine conifer woodland.

***Echinostelium colliculosum** K.D. Whitney & H.W. Keller

8, on *Quercus*. Common and widespread in Europe; recorded from Switzerland (Ing, 1997, 1999a.)

Echinostelium minutum de Bary

1,8, on *Populus* and *Quercus*. Cosmopolitan and generally common; the largest species of the genus and more easily spotted in cultures.

Licea biforis Morgan

1,3,4,5,7, on *Acer*, *Malus*, *Populus* and *Quercus*. Common and widespread in Europe.

***Licea denudescens** H.W. Keller & T.E. Brooks

5, on *Quercus*. Widespread but rare in Europe; recorded from Switzerland, usually associated with epiphytic lichens.

Licea kleistobolus G.W. Martin

8, on *Quercus*. Widespread and common on acid-barked trees, invariably on areas of bark which are bare of epiphytes.

Licea parasitica (Zukal) G.W. Martin

1,2,4,5,8, on *Acer*, *Malus*, *Populus* and *Quercus*. The commonest corticolous myxomycete and ubiquitous in temperate regions.

***Licea perexigua** T.E. Brooks & H.W. Keller

2, on *Malus*. A rare species of acid-barked trees; known from Switzerland.

***Licea pygmaea** (Meylan) Ing

4,8, on *Acer* and *Quercus*. Usually found with epiphytic lichens, this minute species is probably less rare than the records suggest; known from Germany and Switzerland.

Macbrideola cornea (G. Lister & Cran) Alexop.

1,2,3,4,7, on *Acer*, *Malus*, *Populus* and *Quercus*. Common in neighbouring Switzerland; almost always associated with acrocarpous epiphytic mosses.

***Paradiacheopsis rigida** (Brândză) Nann-Bremek.

1,2,7, on *Malus*, *Populus* and *Quercus*. A rare species with a scattered pattern of distribution; recorded from Switzerland and Slovakia.

Paradiacheopsis solitaria (Nann.-Bremek.) Nann.-Bremek.

8, on *Quercus*. One of the commonest species of corticolous myxomycete and typical of ancient woodland.

Perichaena chrysosperma (Currey) Lister

1,4,6, on *Acer* and *Populus*. A common and widespread species, usually on less acid bark, which may also be eutrophicated by bird guano, and often associated with bryophytes.

Perichaena corticalis (Batsch) Rostaf.

2,3,4,7, on *Acer*, *Malus* and *Quercus*. Common on fallen bark but uncommon in bark cultures; associated with less acid bark.

Physarum album (Bull.) Chevall. (*P. nutans* Pers.)

4,5,8, on *Acer* and *Quercus*. Very common on fallen wood but infrequent in bark cultures.

***Physarum bethelii** T. Macbr.

8, on *Quercus*. A rare species on bark, often associated with bryophytes; recorded from Germany, Italy and Switzerland.

Physarum leucophaeum Fr.

8, on *Quercus*. Common on fallen wood, rare in bark cultures.

Physarum pusillum (Berk. & M.A. Curt.) G. Lister

2, on *Malus*. Common and widespread on all manner of grass litter but quite frequent in bark cultures.

Physarum serpula Morgan

1,3,4,5, on *Acer*, *Malus*, *Populus* and *Quercus*. An uncommon species, often confused with the more common *P. decipiens* Curtis and *P. auriscalpium* Cooke; recorded from Switzerland and Croatia.

Stemonitis flavogenita E. Jahn

2, on *Malus*. A common lignicolous species which rarely occurs in bark cultures.

Stemonitis herbatica Peck

8, on *Quercus*. A common litter species which is very rare in bark cultures.

Stemonitis nigrescens Rex

2, on *Malus*. A truly corticolous species which is often confused with the abundant, lignicolous, *S. fusca* Roth, which is larger and never occurs in bark cultures, however long they are kept.

Stemonitopsis amoena (Nann.-Bremek.) Nann.-Bremek.

4, On *Acer*. A rare species, mostly in western Europe but recorded from Switzerland.

Trichia contorta (Ditmar) Rostaf. var. **contorta**

2, on *Malus*. A widespread and frequent species on rotten sticks but not uncommon in bark cultures, especially of apple.

var. **karstenii** (Rostaf.) Ing

6, on *Populus*. A widespread but uncommon corticole, sometimes included in *Hemitrichia*.

Trichia munda (Lister) Meylan

8, on *Quercus*. An uncommon species usually associated with epiphytic mosses.

The most interesting feature of this list, apart from the additions to the Austrian myxoflora, is the number of non-obligate corticolous myxomycetes which were isolated. This is probably a result of the long period during which the cultures were maintained. Spores which were present in the local environment may have been trapped on the bark and, in the moist and warm conditions of the culture, and were able to complete their life cycles. Many of these could be termed *casual corticoles*, as defined by Ing (1999.)

References

- Neubert, H., Nowotny, W. & Baumann, K. (1993). *Die Myxomyceten*. Bd. 1. Gomaringen, Baumann.
- Neubert, H., Nowotny, W., Baumann, K. & Marx, H. (1995). *Die Myxomyceten* Bd. 2. Gomaringen, Baumann.
- Neubert, H., Nowotny, W., Baumann, K. & Marx, H. (2000). *Die Myxomyceten* Bd. 3. Gomaringen, Baumann.
- Ing, B. (1997). Corticolous myxomycetes from Switzerland. *Mycologia Helvetica* 9, 3-19.
- Ing, B. (1998). Corticolous myxomycetes from central London. *London Naturalist* 77, 83-89.
- Ing, B. (1999). *The myxomycetes of Britain and Ireland*. Slough, Richmond Publ.
- Ing, B. (1999a). Corticolous myxomycetes from Switzerland, 2. *Mycologia Helvetica* 10, 25-40.
- Lado, C. & Pando, F. (1997). *Flora Mycologica Iberica 2: Myxomycetes I. Ceratiomyxales, Echinosteliales, Liceales, Trichiales*. Madrid, Real Jardin Botanico.