

Peridiothelia

On bark, not really lichenicolous, but erumpent through the thallus of Lecanora impudens.
Arizona. P. grandiuscula (Anzi) D. Hawksw.

Phacopsis

After Keissler, Hafellner, 1987, and Triebel & Rambold, 1988

The three species below all form galls

1. Exciple present. Spores \pm lemon-shaped. Ascocaps in groups, (semi-)immersed, globose, later projecting, flat and narrow-bordered, soon \pm convex and immarginate, brown-black, matt, to 0.3(-0.5) mm, without distinct marginal structures. Exciple brown, pseudoparenchymatous. Asci clavate-ovoid, with thick short stalk, broadly rounded at top, apical wall thick. Spores 8 per ascus, in 2-3 rows, ellipsoid-fusiform or ellipsoid-"kahnförmig", hyaline or slightly yellowish, straight, simple, with 1-2 large oil drops, 14-22 x 5-7 μ m. Epihymenium red-brown, K-; hypothecium \pm hyaline; hymenium I++ blue. On Parmelioid or usneoid lichens, sometimes causing galls. Arizona, British Columbia.P. oxyspora (Tul.) Triebel & Rambold (syn. Lecidea oxyspora, Nesolechia oxyspora)

1. Exciple absent. Spores otherwise. On fruticose lichens. 2

2. Hypothecium dark brown. Spores oblong, 13-16 x 3-4 μ m. On Bryoria spp. Asci with Lecanora-type apical apparatus (not bitunicate as stated by Hawksworth). British Columbia.P. huuskonenii--see Hawksworth

2. Hypothecium hyaline. Spores ellipsoid, 13-15 x 5-7 μ m. On Letharia spp. Asci 45-60 x 20-30 μ m, in a gelatin, broadly cylindrical to slightly clavate, 8-spored; wall several layered, strongly thickened apically; apical apparatus Lecanora-type; dehiscence rostrate. Paraphyses somewhat branched and anastomosing, conglutinate, 2-3 μ m thick; tips slightly clavate to 5 μ m thick, with small, brown pigment cap; epihymenial gel slightly brown. Spores hyaline, 1-celled, thin-walled, without internal wall thickenings and without perispore. Pycnospores bacilliform, straight, 6-7 x 2 μ m. British Columbia to California; Idaho.P. vulpina--see Keissler

Phaeopyxis

Apothecia small, black-brown, nitid, turgescens, \pm distinctly marginate, 0.1-0.25(-0.3) mm diam., plane, sessile, crowded, roundish, partly confluent. Excipulum laterally to 10-20 μ m thick, dark brown to black-brown. Hypothecium brown, 20-35 μ m tall. Hymenium 35-40(-45) μ m tall, colorless to pale brown. Paraphyses 1-2 μ m thick; lumina 1-1.5(-2) μ m wide. Epihymenium dark brown to black-brown, 5-10 μ m. ASci (sub-)cylindrical, (30-)35-50 x 7.5-8.5 μ m; ascus wall apically ca. (1-)1.5-2(-2.5) μ m, laterally 1-1.5 μ m thick, I+ pale bluish. Spores ellipsoid, (7-)8.5-10.5(-12) x 2.5-3.5(-4) μ m. Brown pigmentation K \pm violet-brown. On Cladonia spp., occasionally inducing galls. Newfoundland; British Columbia. P. punctum (Massal.) Rambold, Triebel & Coppins

Phaeospora

After Zopf, Dennis, and Hawksworth, 1983

(also see Keissler under P. parasitica)

VERRUCARIACEAE. Pseudothecia scattered, minute, immersed; asci thick-walled, 4-8-spored; ascospores 3- or more-septate, brown.

Pseudothecia semi-immersed, black, scattered. Asci thick-walled, 8-spored. Spores 4-celled, brown, (13-)17-19 x 5.5-8(-9) um, ellipsoid or oblong-ellipsoid, the tips pointed. Hamathecium ansemt or gelatinized. On thallus of Mosigia gibbosa, Rhizocarpon concentricum, and other crustose lichens.P. rimosicula (syn. Pyrenulella endococcoidea)

Phaeosporobolus

Conidia multicellular, composed of discrete subglobose cells, brown, arising in closed pycnidia.

- 1. Conidiomata with an outer pellicle-like hyphal covering, (30-)50-70(-90) um diam.; conidia irregularly ellipsoid, 15-25 um long. On Usnea, Physcia, Evernia, and various other macro- and micro-lichens. British Columbia, Michigan. P. usneae D. Hawksw. & Hafellner**
- 1. Conidiomata lacking an outer pellicle-like hyphal covering (20-)30-75 um diam.; conidia irregularly subglobose, (9-)10-15(-17) um diam. On Ochrolechia and Pertusaria spp. British Columbia. P. alpinus R. Sant.**

"Pharcidia"

After Bouly de Lesdain, and Dennis

VERRUCARIACEAE. Pseudothecia small, immersed in lichen thalli or apothecia; asci thick-walled, 4- or 8-spored; ascospores hyaline, 1-3-septate.

Parasite on discs of Lecanora muralis. Ascocarps black, numerous, minute, hemispherical, polished, first totally immersed, then sessile, free. Paraphyses few, simple; asci numerous, clavate; spores 8 per ascus, hyaline, 1-septate, 13-17 x 6-6.5 um, the loculi equal or almost; hyemnum I+ fulvescent. Mexico.P. squamariae
(description from Bouly de Lesdain)

Phoma

On Physcia. British Columbia. P. physciicola Keissl.

Phragmonaevia

see Cortifgraga

Phylliscum

Forming purplish peltate scales on Ochrolechia frigida. P. demangeonii

Placographa

After Dennis

Apothecia elongated, black. Asci 8- or more spored; spores hyaline, simple.

Not yet reported from N. America.

Plectocarpon

1. Forming galls. On Lobaria. British Columbia. P. lichenum (Sommerf.) D. Hawksw..

1. Not forming galls. P. linitae

P. lichenum--See Hawksworth

P. linitae (R. Sant.) Wedin & Hafellner (syn. Arthonia linitae)

Ascomata brownish, fleck-like, non-carbonized, multilocular, composed of small, elongated lirellae; hypothecium brown, epithecium unevenly developed, composed of patches of brownish pigmentation; hymenium I+ red, K/I+ blue; hamathecium netlike, of distinct, richly branched and anastomosing filaments; asci clavate, 33.5-47 x 11-15.5 μ m, with distinct K/I+ blue ring; spores 3-septate, 14.5-19(-21) μ m long, with very distinct perispore. Pycnidia common, immersed in the ascostroma, microconidia slightly pointed, \pm narrowly ellipsoid, 3-4 x 1 μ m.

Commensalistic on thallus of Lobaria linita.

Literature

Diederich, P. & J. Etayo. 1994. Taxonomic notes on the genus Plectocarpon (lichenicolous Ascomycotina). Nordic Journal of Botany 14: 589-600.

Wedin, M. and J. Hafellner. 1998. Lichenicolous species of Arthonia on Lobariaceae with notes on excluded taxa. Lichenologist 30: 59-91.

Pleosphaeria

Parasymbiotic on Lichenothrxi riddlei. Pseudothecia ovoid to pyriform, 200-300 x 100-170 um; peridium brown; asci obclavate to cylindrical, bitunicate, 50-60 x 12-16 um. Paraphysoids scarcely developed; periphysoids formed below ostiole; spores muriform, 8 per ascus, ellipsoid, darkening, 17-24 x 6-13 um. P. lichenothricis

Polycoccum

After Hawksworth, 1983, Hawksworth & Dietrich, 1988,
and Mudd, 1861

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1. **Ascospores 8 per ascus**, mainly exceeding 16 μ m in length,2

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2. **Ascospores olive-brown, coarsely verrucose with protruding warts, the cells \pm equal, 18-21 x 10.5-14 μ m, often also with muriform spores. On Placopsis gelida.** Ascomata maculiform, scattered; nucleus white; paraphyses distinct, lax, flexuose, mixed with a hyaline watery substance; asci short, cylindrical, 4-spored, constricted opposite each spore; spores subrotund or broadly oblong, their outline irregular, filled with a dark red or nearly black protoplasm, obscurely bilocular. P. gelidarium (Mudd) D. Hawksw.

2. **Ascospores at first hyaline but becoming brown when mature; cells unequal, 16-23(-28?) x 6-9.5(-12?) μ m. On Sporastatia or Lecidella. Colorado, Arizona. P. sporastatae (Anzi) Arnold**

3. **Ascomata (50-)100-150 μ m diam.** Spores 14-18 x 7-8.5 μ m, the cells \pm equal or upper one slightly larger, 4-8 per ascus; asci sometimes 4-spored, but then with 4 abortive spores visible in younger asci; asci subcylindrical. On yellow or brown Acarospora spp.P. microstictum

3. **Ascomata mainly over 150 μ m diam.** Spores mainly over 12 μ m long and 7 μ m wide, the cells \pm equal in size. 4

4. **On Squamarina sp.** Ascospores (15-)19-22(-26) x (6-)7-9(-10) μ m, upper cell somewhat larger. Ascomata 60-120(-150) μ m diameter. Asci elongate-clavate to subcylindrical. Record from Canada is probably a misidentification of P. squamarioides.P. epicrassum

4. **On other lichens.** Ascospore cells \pm equal in size. 5

5. **Ascospores 14-18(-21) x 7-9 μ m. On Physcia, Heterodermia, and Xanthoria.** Forming wart-like galls. Material from Baja California has slightly smaller spores than usual. On usually saxicolous host lichens. Baja California; Greenland. P. galligenum Vezda

5. **Ascospores (18-)19-26 x (5.5-)6-7(-8) μ m. On Placopsis gelida.** Ascomata 75-100 μ m, black, punctiform, aggregated into little groups; nucleus grayish white; paraphyses indistinct. Asci elongate-clavate, 8-spored; spores obtusely fusiform to fusiform, at times slightly constricted in the middle, dark olive or nearly black.P. squamarioides

ADD:

On Stereocaulon. British Columbia. P. trypetelioides (Th. Fr.) R. Sant.

Some other species (not yet reported from N. America):

On Peltigera:

Ascospores (12-)13.5-16(-18) x 4-6(-7) um, smooth walled; asci 8-spored; ascomata 125-175 um diam. P. peltigerae (Fuckel) Vezda

Ascospores 26-35 x 8-10 um, verruculose; asci 4-spored; ascomata 300-500 um diam. P. crassum Vezda

On Stereocaulon:

Ascospores unequal in size, the septum in the lower third, 14-22 x 8-10 um, 8 per ascus. Forming galls to 2.5 mm diam. P. trypetelioides

On pyrenocarpous lichens on hard limestones:

Spores 8 per ascus, 25-36 x (12-)14-18 um, coarsely verrucose. Perithecia to 0.3 mm diam. P. marmoratum

Polysporina

Thallus immersed in host. Spores 4-5.5 x 2-3 μ m. Apothecia superficially resembling those of Carbonea vitellinaria but frequently have brownish tinged, umbonate disks. On saxicolous crustose lichens, e.g., Acarospora, Buellia, Lecanora and Candelariella. Wyoming; Arizona. P. lapponica (Schaerer) Degel. (syn. P. dubia)

Pronectria

1. On **Peltigera**. British Columbia. P. robergei (Mont. & Desm.) Lowen
1. On **Physcia**. British Columbia. P. sp.

Protothelenella

On Solorina crocea. British Columbia; New Hampshire. P. santessoniii Mayrh.

Psorula

Thallus shell-like squamulose to concave-foliose. On Spilonema paradoxum. P.
rufonigra

Pseudodiscus

Asci bitunicate, I- or at most the gelatin slightly bluish; dehiscence of "Jack-in-the-box" type. Pseudothecia delicate, short-stalked, sessile on a subiculum. Spores hyaline. On Alaska yellow cedar, but not reported from N. America. P. nootkatensis

Pyrenidium

After Hawksworth, 1983, Triebel, et al., 1991, and others

Ascospores (31-)34-39(-45) x (7.5-)10-12.5(-14) μ m, elongate-ellipsoid to broadly fusiform, (1-)3-4-septate, On Placopsis gelida. P. hyalosporum

Ascospores (17-)19-30(-34) x (7-)8-11(-12) μ m, dark brown, 3-septate, with distinct central pore and pale brown ends. Perithecia immersed to erumpent, (0.1-)0.15-0.25 mm diam. On various crustose or macrolichens on various substrates (e.g., yellow Acarospora spp., Trapeliopsis granulosa, Baeomyces rufus, Peltigera, Leptogium, Massalongia, Diploschistes, Caloplaca, Teloschistes), sometimes forming gall-like formations. Arizona, Minnesota; Mexico; Greenland. P. actinellum

Literature

Ihlen, P. G. 1998. The lichenicolous fungi on species of the genera Baeomyces, Dibaeis and Icmadophila in Norway. Lichenologist 30: 27-57. [info. from this not yet incorporated]