

Abrothallus

After Hawksworth, 1983, Keissler, and others

Ascocarps immersed then sessile, round, flat then convex, the margin thin, disappearing, the disc black, almost waxy. Asci clavate, rounded and often thickened above, 4-8-spored, the spores 1-septate, brown. Paraphyses branched, septate. Hypothecium brown. All species lichenicolous.

1. Apothecia with an iridescent green pruina when young, 0.3-0.7 mm diam. Vegetative hyphae generally not turning blue in Lugol's iodine. Epihymenium K⁺ greenish. Hymenium I-. Spores (10-)14-18(-22) x (4-)5-7 um. Anamorph Vouauxiomyces santessonii. Sometimes forming galls. On Parmeliaceous, Usneaceous, and Stictaceous lichens. Arizona; British Columbia. A. parmeliarum (Sommerf.) Arnold

1. Apothecia epruinose, 0.15-0.3 mm diam. 2

2. Apothecia arising on pinkish terminal galls on Usnea spp., forming "pseudocephalodia". Doubtfully distinct from A. parmeliarum. A. usneae

2. Apothecia arising directly on the host thallus. 3

3. Ascospores 9.5-11 x 3-5 um. Anamorph Vouauxiomyces truncatus usually present and preceding the formation of the apothecia. Parasymbiotic on Parmelioid lichens (Flavoparmelia caperata, Parmotrema chinense). A. microspermus Tul.

3. Ascospores 9-13 x 5-7 um. Anamorph usually absent. On Melanelia, Xanthoparmelia, Pseudephebe, Nephroma. Vegetative hyphae usually turning blue in Lugol's solution (but sometimes not, e.g., in the specimen from Arizona). Arizona; Greenland. A. bertianus DeNot.

ADD:

Vegetative hyphae blue in Lugol's. On Vulpicida pinastri. Alberta. A. peyritschii (Stein) Kotte

Pseudothecia substipitate. Spores 11-4 x 5-6 um. On Cavernularia (and other lichens). California. A. prodiens (Harm.) Diederich & Hafellner (see Diederich, 1990, for K reactions)

On Platismatia. British Columbia. A. cetrariae Kotte

Acarospora

1. Thallus yellow. On Caloplaca spp. A. stapfiana
1. Thallus brown. see key to brown spp.

Adelococcus

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

All species lichenicolous.

On Acarospora spp. (A. fuscata, A. glaucocarpa and A. macrospora). Spores 11.5-16 x 7-10(-13) um (in Mexican specimen 5-5.5 um wide), 8 per ascus. Baja California; Greenland. A. alpestris (Zopf) Theiss. & H. Sydow

Apiosporella

A. caudata = Cercidospora caudata

Arthonia

Parasitic Species

After Hawksworth, 1983, and others

1. Ascospores 1-septate. 2

1. Ascospores 2-3-septate. Ascomata with a continuous hymenium, unilocular. Ascospores exceeding 5 μm in width, 2-3-septate. A. glaucomaria s. lato. 3

2. Ascomata 0.1-0.2(-0.3) mm diam. 2a

2. Ascomata 0.2-0.5(-0.8) mm diam. Discoloring the host apothecia blackish. Spores 1-septate, sole-shaped. Hypothecium hyaline to \pm pigmented. On Lecanora dispersa group, Rhizoplaca spp., Protoparmelia badia, and Psoroma hypnorum. Greenland; Colorado, New Mexico, Arizona. A. clemens (Tul.) Th. Fr. s. lato

2a. On Physciaceae and Teloschistaceae. Ascomata reddish brown. Hymenium red (directly) in Lugol's iodine. Hypothecium dark brown. Spores sole-shaped. Paraphysoids with apical cells 4-5 μm thick. Spores 1-septate, 10-14 x 3.5-5 μm . On thallus and apothecia of members of the Physciaceae (e.g., Phaeophyscia) and Teloschistaceae. Arizona; Greenland. A. epiphyscia Nyl.

2a. On Letharia. Ascomata black. Hymenium blue in Lugol's iodine. Hypothecium light brown. Spores ellipsoid. Spores 1-septate, 10-11 x 3 μm . British Columbia. A. lethariicola Alstrup & M. Cole

3. On corticolous/lignicolous lichens. Very similar to A. glaucomaria, but living in the thallus and apothecia of the Lecanora pallida group. Arizona. A. subfuscicola (Lindsay) Triebel (syn. A. pallidae)

3. On saxicolous lichens. 4

4. Spores 3-septate, 13-16(-18) x 5-6(-8) μm . On apothecia of Lecanora rupicola, turning them black. Ascocarps black. Asci arranged in compact black ascomata, 8-spored. Hypothecium colorless. Epithecium dark. Widely distributed in montane regions. Arizona; British Columbia. A. glaucomaria s. str.

4. Spores mostly 2-septate (rarely 3-septate), 11-19 x 3.5-5.5 μm . In the hymenium of saxicolous species of Lecidella. Infected apothecial discs with an irregular and rough surface, mostly convex. Thecial elements relatively scarce, often intermixed with those of the host. Minnesota; California, New Mexico. A. intexta

ADD:

A. fusca

On Xanthoria elegans. British Columbia. A. molendoi (Frauenf.) R. Sant.

On Peltigera polydactylon. British Columbia. A. fuscopurpurea (Tul.) R. Sant.

Several other spp.

A. lethariicola Alstrup & M. Cole

Ascomata black, convex, sessile, 0.1-0.3 mm diam., often fusing and forming round gall-like structures up to 1.5 mm in diam. Hymenium light brown, 50 µm high, hypothecium lighter brown, epithecium dark brown due to darkened tips of paraphyses. Paraphyses 2.5 µm wide with tips swollen to 3.5 µm. Asci broadly ellipsoid, 28-32 x 17-20 µm, 8-spored, staining blue with Lugol. Spores hyaline, 1-septate, ellipsoid, 10-11 x 3 µm.

Arthopyrenia

No lichenicolous species yet reported from N. America; the lichenicolous species presently assigned to this genus may belong in other genera.

Arthrorhaphis

Ascospores 8-11-septate, (35-)50-70(-100) x 2-4(-5) μ m. On Baeomyces rufus at first, later forming an independent citrine green powdery thallus. A. citrinella

Ascochyta

After Hawksworth & Kalb, 1992

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Ascochyta candelariellicola D. Hawksw. & K. Kalb

Conidiomata pycnidial, arising singly in hymenium of host, especially in part of disc closest to exciple, infected host tissue eventually becoming decolorized; pycnidia immersed, tip level with hymenial surface, black, somewhat shiny, (20-)25-40(-45) µm diam. in surface view, 45-70 µm tall in vertical section, occupying full height from top of subhymenium to hymenial surface; ostiole central, smooth to slightly raised, 10-15 µm diam.; pycnidial wall composed of polyhedral pseudoparenchymatous cells, textura angularis, mainly composed of 1-2 layers of cells 5-7 µm thick at base and sides, but multilayered and strongly expanded to 19-22 µm thick in upper part and around ostiole, pale- to olive-brown in lower parts, dark olivaceous brown to black around ostiole; individula cells 5-7(-9) µm diam. in surface view, not or scarcely radially compressed, smooth, those in upper part darker and thicker-walled than those in lower parts.

Mycelium ramifying through hymenial tissues, hyphae mainly vertically orientated amongst paraphyses, hyaline, smooth, sparsely branched, 1.5-2 µm wide.

Conidiogenous cells lining almost entire inner surface of pycnidial cavity, enteroblastic, acrogenous, subglobose to short and broadly ampuliform, hyaline, smooth, not proliferating, 3-5 µm diam.

Conidia arising singly, narrowly ellipsoid to somewhat soleiform, rounded at apex and somewhat truncated at base, hyaline, 1(-3)-septate, smooth, lacking any gelatinous sheath or appendages, 8-11.5(-19) x 3-3.5 µm.

On apothecia of Candelariella aurella, Baja California Sur.

Hawksworth, D. L. and K. Kalb. 1992. A new species of Ascochyta on Candelariella aurella from Baja California, Mexico. The Bryologist 95: 338-339.

Asterophoma

After Hawksworth

Conidiomata pycnidial, arising singly, uniloculate, scattered or loosely aggregated, globose, superficial or half-immersed, dark brown to black, ostiolate; walls composed of radially oriented elongated dark brown pseudoparenchymatous cells becoming attenuated and projecting slightly at the exterior to give the whole a star-like appearance. Conidiophores absent. Conidiogenous cells enteroblastic, interdigitated with the inner wall cells and lining the pycnidial cavity, acrogenous, narrowly ampulliform to broadly subcylindrical, phialidic, occasionally biphalidic, not proliferating, hyaline. Conidia subcylindrical, hyaline, simple, smooth-walled, minute, aggregated into a slimy mass which is extruded through the ostiole as a whitish drop.

On Calicium glaucellum and C. trabinellum. Conidiomata singular, 1-celled, 30-42 µm diameter, the wall entire, an ostiole present. Conidia subcylindrical, 1.5-3(-3.5) x 0.5-1.5 µm, extruded in a mucilaginous white drop. Conidiogenous cells hyaline, occasionally biphalidic. British Columbia.A. mazaedicola