

Megalaria Hafellner

After Ekman & Tonsberg, 1996, and Coppins

Rev. 4/96

The genus description given here is based primarily on M. grossa and may have to be modified somewhat to include other species.

Thallus crustose, without a distinct cortex. Photobiont chlorococcoid.

Apothecia sessile, biatorine, but dark, sometimes rather large. Thalline exciple absent. True exciple persistent, raised, black or dark, of anticlinally arranged hyphae, each with a thick gel coat. Hymenium \pm colorless, I+ pale blue. True exciple, epithecium and hypothecium with dark greenish pigment. Epihymenium usually with \pm green or blue-green pigment, K+ pure green, N+ purple-red. Paraphyses numerous, slender, simple or sparingly branched in upper part, but with at least a few anastomoses, apices clavate, without dark apical caps. Asci cylindrical-clavate, \pm Biatora-type, or Lecanora-type, with a broad, non-amyloid apical cushion; axial body conic, cylindrical, or barrel-shaped (with convex sides), usually surrounded by a zone that is more amyloid than the remainder of the thallus; ocular chamber shallow, blunt. Spores (2-)8, ellipsoid to subglobose (usually not more than twice as long as wide), sometimes rather large, + ellipsoid, 1-septate, colorless, thick walled, smooth, lacking a distinct outer sheath.

Pycnidia with conidia ellipsoid to oblong, simple, colorless. No substances. On bark. Type species: M. grossa.

Distinguished from Catillaria s. lato (including Catinaria) by the rather large apothecia, thick-walled ascospores, and the ascus type (Coppins describes this as "Lecanora-type" with a broad apical cushion in M. grossa, but as "Bacidia-type or Biatora-type" with a narrow apical cushion in "Catillaria pulverea").

1. Spores 20-30 x 10-15 μ m. Apothecia without violet pigment. Exciple with crystals. Hypothecium and exciple with oil droplets. Hypothecium, and sometimes inner part of exciple, with brown-red or brown-purple pigment, K+ red or purple-red, N+ orange. M. grossa

1. Spores under 20 μ m long and 10 μ m wide. Apothecia with or without violet pigment. 2

2. Apothecia with crystals in the excipulum and with violet pigment, K+ green-blue, N+ purple-violet, in epihymenium and vertical streaks in hymenium. Epihymenium and exciple without brown-red or brown-purple pigment. Hypothecium hyaline, K-, N-, without oil droplets. 3

2. Apothecia without crystals and without violet pigment. Epihymenium and exciple with brown-red or brown-purple pigment, K+ red or purple-red, N+ orange. Hypothecium at least partly pigmented and K+, N+, with or without oil droplets. 4

3. Thallus sorediate. Lower part of hymenium without green or blue-green pigment. Spores

10-16(-19) x 4.5-6.5 um. M. pulverea

3. Thallus not sorediate. Lower part of hymenium with green or blue-green pigment.

Otherwise similar to M. pulverea. Growing in the Smoky Mountains. M. albocincta

4. Spores 17-21 x 9-11 um. Hypothecium with pure brown, K-, N- pigment in addition to brown, K+ red, N+ orange pigment. Hypothecium with or without oil droplets. Without gray-brown or dirty brown pigment. M. brodoana

4. Spores to 7 um wide, mostly under 17 um long. Hypothecium green, blue-green, or hyaline, or if brown then K+ red, N+ orange. 5

5. Apothecia with oil droplets in the hypothecium. Hypothecium, hymenium, and inner part of exciple with green or blue-green, K+ pure green, N+ purple-red. Hypothecium without brown-red or brown-purple pigment. Epihymenium without a gray-brown or dirty brown pigment. Spores (12-)15-18(-19) x 5-6(-7) um. M. columbiana

5. Apothecia without oil droplets. Hypothecium, inner part of exciple, and hymenium without green or blue-green pigment. Hypothecium with brown-red or brown-purple pigment, K+ red or purple-red, N+ orange. Epihymenium with gray-brown or dirty brown pigment, K+ purplish, N+ orange-red. Spores 12-18 x 5-7 um. M. laureri

M. albocincta (Degel.) Tonsberg

Epihymenium black or blue-black, K-; hypothecium \pm hyaline to red-brown, K-; hymenium 80-90 um. Apothecial margin pale. Smoky Mountains. [See Degelius, 1941, 1942 for full description]

M. brodoana Ekman & Tonsberg

Thallus crustose, thin to rather thick, \pm blue-green (seldom pale green), composed of discrete or aggregated granules formed either directly on surface of prothallus, or on surface of thin, pale grayish, continuous or discontinuous, areolate crust. Granules \pm globose, shortly cylindric, clavaate, or \pm irregular, when formed on surface of areoles beginning as discrete warts, (36-)69-75-83(-109) um wide, bascially pale green but generally with dark grayish blue or bluish black surface in upper part. AREoles (when not entirely covered in granules) with \pm uneven surface, often with somewhat reflexed edges. Prothallus present as thin, pale gray to blue-gray film between areoles, along edge of thallus either lacking or presetn as thin, pale gray and diffuse, sometimes (wshere it meets other lichens) distinct, blue-gray to blue-black zone. Photobiont chlorococcoid, cells 5-8 um diam.

Apothecia, when present, sparse to abundant, (0.5-)0.6-0.9-1.2(-1.5) mm diam., at first plane, later moderately convex. Disk dark purplish brown, purplish black, or pure black, epruinose. Margin concolorous with disk, thick, at first raised, later level with disk, persistent. Proper exciple laterally 88-115 um thick, without crystals, in interior dark brown-red, towards rim gradually fading to colorless or pale brown-red, except uppermost part close to hymenium, sometimes dark greenish. Excipular hyphae thick-walled, anastomosed and sparingly branched without swollen terminal cells, with lumina to 1 um wide. Hypothecium dark red-brown or sometimes brown-red in upper part, sometimes with oild-drops. Hymenium (105-)111-125-150(-160) um, brown-red or red-brown in lower part, upwards gradually changing to almost colorless, with distinct gray-green, gray-brown or green-brown epithecium. Paraphyses unbranched or \pm

branched in upper part, \pm anastomosed, 1.2-2.4 μ m wide in mid-hymenium; apices \pm clavate or not at all thickened, some with thick gelatinous cap, (1-2-)1.9-2.7-3.6(-5.7) μ m wide excluding gelatinous cap. Asci cylindrical to narrowly clavate, with up to 8 spores (some often degenerate). Tholus in iodine with high or low, bluntly conic ocular chamber and a high, blunt or pointed, conic axial body that sometimes reaches through entire amyloid layer, surrounded by evenly dark blue zone. Spores broadly ellipsoid to almost subglobose, (15-)17-19-21(-26) x (7.4-)9.1-10.4-11.0(-13.6) μ m, 1-septate, with wall up to 2 μ m thick. Pycnidia not seen.

Thallus granules K+ green, C-, N+ purple-red; epithecium gray-green, K+ pure green, C-, N+ purple-red; proper exciple, hypothecium, lower part of hymenium, and sometimes epithecium, brightly brown-red, K+ purple, C-, N+ orange-red; hypothecium pure brown, K-, C-, N-.

On hardwood bark (usually Alnus), Alaska to Oregon, more or less coastal.

M. columbiana (G. Merr.) S. Ekman

Exciple and tissue beneath hypothecium bright blue. Thallus 1.4-4.4 cm broad, continuous-granular to minutely granular areolate, grayish to greenish-white, yellowing in herbarium; hypothallus white, fimbriate, obvious at margin, sometimes absent.

Apothecia abundant, \pm scattered, adnate, 0.3-0.9 mm diam.; proper margin entire, even, inconspicuous, becoming excluded, concolorous with disc or darker (when disc lightened); disc plane, becoming slightly to strongly convex, \pm round (rarely lobulate to almost tuberculate), black or occasionally brown-black, dull, epruinose. Exciple and tissue beneath hypothecium bright blue; epithecium brown to reddish brown; hymenium 75 μ m high, hyaline or suffused with red to a slight extent; spores 8 per ascus, fusiform, (12-)15-18(-19) x 5-6(-7) μ m.

Pycnidia occasional; conidia ampulliform, ca. 2.5 x 1 μ m, formed terminally on conidiophores similar to those of M. grossa but 6-10 μ m long.

Thallus K \pm sordid yellow, C-, KC-, P-.

On bark of various coniferous and hardwood trees or shrubs. Southern British Columbia, Washington to California.

M. grossa (Pers. ex Nyl.) Hafellner

Thallus effuse, \pm smooth or slightly verrucose, often rimose, greenish white to pale gray.

Apothecia 0.4-1.5(-2) mm diam.; disc flat to convex, matt; true exciple distinct, glossy; inner part colorless; epithecium, hypothecium and outer exciple bluish to greenish black, K+ green intensifying, N+ purple-red; hymenium 120-140 μ m tall, usually colorless but this and hypothecium sometimes (especially in old apothecia) with additional reddish (K+ purple-red) pigment. Paraphyses 1.5-2 μ m wide. Spores 20-30 x 10-15 μ m, ellipsoid to oblong-ellipsoid, often slightly constricted at septum, wall 1-2 μ m thick.

Pycnidia 100-200 μ m diam., inconspicuous, immersed; wall colorless or pale greenish in upper parts; conidiogenous cells 10-15 x 1-1.5 μ m, \pm cylindrical; conidia 3-4 x 1.5-2 μ m.

Thallus P-, K-, C-, KC-, UV-.

On nutrient-rich bark of usually mature trees, sometimes on younger or small trees, usually in old, humid woodlands, very rarely on basic rocks. Usually recognizable in the field by the contrasting pale thallus and rather large, black, sessile apothecia with a minutely roughened disc and shiny, raised exciple.

M. laureri (Th. Fr.) Hafellner

Epihymenium violet brown or blue-black, K+ violet. Hypothecium red-brown, K+ purple-red; hymenium 65 µm. Apothecial margin black (to dirty yellowish). Thallus whitish to gray-green, rimose, thin and smooth, or to 150 µm thick with a granular-warted surface; prothallus black, delimiting. Photobiont cells 6-14 µm diam. Apothecia 0.4-1.1 mm diam.; disc flat to slightly convex; true exciple shallow, often paler than disc, ± colorless, sometimes brownish (concolorous with epithecium) at upper outer edge, at base of apothecium often concolorous with hypothecium, swelling in K, the hyphae distinctly radiating, branched and anastomosing, 1.5-2 µm wide, without swollen ends; epihymenium dark purple-brown, K+ purplish, N+ red, sometimes with additional patches of greenish, K+ green, N+ red pigment; hymenium 65-80 µm, colorless to pale purple brownish; hypothecium pale golden brown, K-; subhymenium purple-red, K+ purple. paraphyses 1.3-1.7 µm wide, simple; apices clavate to 3 µm wide, cemented by adhering pigment. Asci Bacidia-type, with distinct apical cushion. Spores 12-18 x 5-7 µm, ellipsoid to fusiform-ellipsoid. Thallus P-, K+ pale yellow, KC-, C-, UV-. On trunks of trees (e.g., Fagus). Eastern N. America.

M. pulverea (Borrer) Hafellner & Schreiner in Schreiner & Hafellner

Thallus effuse, thin, ± evanescent; soralia large, effuse, gray-white to glaucous, granular, sometimes coalescing to form an almost continuous, sorediate crust; soredia 40-100 µm diam. Photobiont cells 5-14 µm diam.

Apothecia rare, 0.5-2.2 mm diam., flat, sometimes convex and contorted, black; true exciple distinct, colorless, or pale brownish in upper part, sometimes concolorous with epithecium at upper outer edge, the hyphae coherent in K, 2-3 µm wide, each with a thick gel coat; epithecium dark green, K+ green intensifying, N+ red, sometimes with additional, violet, K+ green patches; hymenium 60-75 µm tall, colorless; hypothecium (and exciple) with minute, colorless crystals not dissolving in K or N, or pale brown in uppermost and/or lowermost parts. Asci with apical cushion narrow, in K/I surrounded by thin, dark blue zone. Spores 10-16(-19) x 4.5-6.5 µm, broadly to fusiform-ellipsoid, the walls rather thick; perispore absent. Pycnidia absent.

Thallus P+ red, rarely P- or faint yellow, K+ yellow, KC-, with atranorin, zeorin, and usually fumarprotocetraric acid.

On mossy trunks (rarely branches) in old, especially moist woodlands, occasionally on mossy rocks or soil (especially near the coast), and on old Calluna.

ADD:

M. sp. (syn. Catillaria superflua (Muell. Arg.) Zahlbr.; Patellaria superflua Mull. Arg., Flora 70: 336 (1887) = possibly M. grossa
New England.

Literature

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