

Bacidina Vezda
(LECANORALES)

After Ekman (1995), and others

Rev. 4/96

Thallus crustose. Algae chlorococcoid, forming goniocysts. Apothecia biatorine, constricted toward base. Excipulum in part or completely paraplectenchymatous (cell walls moderately thick, lumina roundish). Paraphyses straight, simple, apically thickened. Spores fusiform to acicular, transversely 1-3(-5)-septate, hyaline. Type species: B. phacodes

I. Growing on leaves.

Louisiana. Thallus irregular or circular, to 12 mm diam., continuous or in part dispersed, dark greenish gray to pale grayish white, smooth, farinose; prothallus absent. Apothecia constricted at base, 0.1-0.5 mm diam.; disc pale orange-yellow or salmon buff to pale reddish brown, epruinose, plane or subconvex; margins thin, often indistinct, smooth, concolorous with disc or paler. Hypothecium hyaline; hymenium 38-45(-50) μ m, I+ blue then sordid green. Spores normally 3-septate but sometimes 5-7-septate, \pm filiform, 20-40 x 1.5-2 μ m. Bacidina apiahica (Müll. Arg.) Vezda

II. Growing on bark or wood.

1. Upper part of hymenium green, blue-green, or green-gray, N+ red to purple (sometimes with a precipitate of blue crystals). B. egenula

1. Upper part of hymenium colorless to yellow, orange, brown, or dirty pruplish; reaction to N various. 2

2. Spores bacilliform or fusiform, straight or only slightly curved, not coiled in the ascus, length/width ratio (average of 10 or more spores) never exceeding 11 (often much less).

..... B. varia

2. Spores usually acicular, straight to curved or sigmoid, often coiled in the ascus when immature, length/width ratio exceeding 10, or if not and spores baciliform to clavate, then spores coiled in ascus and distinctly curved or sigmoid. Upper part of hymenium colorless to yellow or orange, not K+ pale green and N+ pure purple. Proper exciple with or without minute crystals. 3

3. Hypothecium and/or proper exciple immediately below hypothecium dark (brown-orange, orange-brown, redi-brown, dark brown, or red-black). B. arnoldiana

3. Hypothecium and proper exciple below hypothecim pale

- (colorless, pale yellowish, orangish or brownish). 4
4. Apothecia (when fresh) pink, pale yellow, pale gray, or almost white (often darkening to near medium-orange in herbarium). 5
4. Apothecia at least partly brown-yellow or \pm orange to red-brown or black. 11
5. Epithecium and/or proper exciple with crystals. B. crystallifera
5. Epithecium and proper exciple without crystals. 6
6. Spores (average of 10 or more) 1.0-1.4 μ m wide. 7
6. Spores (average of 10 or more) 1.6-2.8 μ m wide. 9
7. Apothecia with pale yellow or pale gray disc. Margin paler than disc, persistent. Bacidina chlorotica
7. Apothecia with \pm pink disc. Margin concolorous with disc, finally excluded. Southeastern. 8
8. Thallus partly dissolving into finely granular goniocysts (granules c. 20 μ m or less diam.). Bacidina sp. 1
8. Thallus of small, deeply incised squamules, the lobes of which are 20-30 μ m wide; not dissolving into goniocysts. B. squamellosa
9. Most young apothecia with a thin thalline margin (visible at least in section), which is soon suppressed by the proper exciple. Axial body lens-shaped. B. ramea
9. Apothecia without thalline margin. Axial body \pm conical. 10
10. Hymenium (average of 5) 57-73 μ m high. Paraphyses fairly abundant in relation to number of asci. Conidia bacilliform or filiform, the latter non-septate. California. B. californica
10. Hymenium (average of 5) 42-61 μ m high. Paraphyses rather few in relation to number of asci. Conidia filiform, usually 3-11-septate. Southeastern. B. varia
11. Disc of at least some young (not seldom all) apothecia brown-yellow or yellow-brown, without tinge of red. Rim of proper exciple K-, in upper part brown brown-yellow, yellow-brown, or almost pure brown, downwards usually gradually changing to pale yellow or colorless. B. aenea
11. Disc at least partly orange to reddish brown or black. Rim of proper exciple at least in part \pm orange to pure brown or purple-brown (when \pm brown, then K+ green-brown or K+ purplish). 12
12. Orange to brown pigment of the apothecia K+ green-brown. B. californica
12. Apothecial pigments K-, K+ intensifying, or K+ purplish. 13

13. Thallus thin, entirely dissolved into granular goniocysts 35-57 um wide (average of 10). B. egenuloidea
13. Thallus usually not at II or only partly dissolved into granular goniocysts. If entirely dissolved, then goniocysts less than 30 um wide (average of 10). 14
14. Most young apothecia with a thin thalline margin (visible at least in section), which is soon suppressed by the proper exciple. Axial body lens-shaped. B. ramea
14. Apothecia without thalline margin. Axial body \pm conical. 15
15. Hymenium (average of 5) 70 um high. Pigmented parts of apothecia K+ intensifying. Conidia curved, non-septate B. assulata
15. Hymenium (average of 5) 42-61 um high. Pigmented parts of apothecia K+ purplish or K+ intensifying. Conidia curved or filiform, usually 3-11-septate. Southeastern. B. varia

III. Growing on rock, or sometimes old wood, mosses or dung.

1. Growing at edge of streams or on water-dripped surfaces, more rarely lake margins. Upper part of hymenium hyaline or often pale pink-brown or purplish brown. Hypothecium yellow to pinkish brown or darker above and hyaline to pale brown, pale straw or purplish below, distinctly K+ violet, rarely K-. [If epithecium brown or olive brown, and growing on calcareous rocks in dry habitats, see "B. cf. inundata" of Gowan, 1988; she states that the epithecium of true B. inundata is usually aeruginose, which disagrees with the description based on Coppins]. B. inundata (Fr.) Vezda
1. Growing on dry rocks. 2
2. Upper part of hymenium green, blue-green, or green-gray, N+ red to purple (sometimes with a precipitate of blue crystals). B. egenula
2. Upper part of hymenium colorless to yellow, orange, brown, or dirty purplish, reaction with N various. 3
3. Hypothecium and/or proper exciple immediately below hypothecium dark (brown-orange, orange-brown, red-brown, dark brown, or red-black). B. arnoldiana
3. Hypothecium and proper exciple below hypothecium pale (colorless, pale yellowish, pale orange, or pale brown). B. egenuloidea

Detailed Descriptions

B. aenea S. Ekman

Bacidina arnoldiana Körber

Apothecia 0.2-0.8(-1.2) mm, usually few and scattered, sometimes absent, whitish gray to gray-brown or brown-black (unchanged wet), to 0.6(-0.8) mm, at first concave to flat with raised, concolorous or paler, often \pm white-pruinose margin, finally plane and immarginate. Exciple hyaline on outer part, dark reddish brown inside, K-; hyphae towards outer part with ellipsoid lumina 3-7 x 1.5-5 μ m; epihymenium \pm hyaline or yellowish, or greenish brown. Hymenium (35-)40-50 μ m, hyaline; Hypothecium \pm hyaline below, dark reddish brown in upper part, K- or K+ dull olivaceous brown. Paraphyses 1-2 μ m wide, simple or a few forked above, coherent; tips often swollen to 5 μ m. Thallus finely granular to rimose, white-gray to green-gray or dull yellowish green to fawn; granules (goniocytes) 20-40 μ m diam. Photobiont cells 5-10(-12) μ m diam. Spores acicular, (19-)27-37(-46) x (0.8-)1.6-2(-3) μ m, thinly 5-7(-9)-septate (1-3-septate according to Coppins; 6-10-septate according to Awasthi). Pycnidia 100-200 μ m diam., \pm immersed, white or rosaceous; pycnospores (26-)30-47(-50) x 1-1.5 μ m, curved. On shaded, damp calcareous rocks, or sometimes shaded bark.

B. assulata

Thallus green-white, pale greenish gray to greenish or brownish. Apothecia pale reddish yellow or reddish brown, or rarely brick red. Thallus thin or minutely warty, or scurfy or powdery. Photobiont cells 5-10 μ m diam. Spores (30-)34-48(-54) x 1-2 μ m, 3- to 7-septate, acicular. Hymenium 45-60 μ m, hyaline. Hypothecium pale orange-brown (K-) above, pale to hyaline below. Paraphyses 1-1.5 μ m wide, a few tips becoming clavate to 3 μ m wide. Apothecia to 0.6 mm, long remaining plane and distinctly marginate. Exciple hyaline or very pale orange-brown, of radiating hyphae, the outer edge with a single row of rounded lumina to 7 μ m wide. Very close to B. phacodes, but having darker apothecia and hypothecium. On bark of deciduous trees. Apothecia similar to those of Bacidia rubella but smaller, and hymenium and spores shorter, thallus not granular.

B. chlorotricula (Nyl.) Vezda

B. crystallifera

B. egenula (Nyl.) Vezda

Apothecia 0.1-0.3(-0.75) mm, gray-brown, black or reddish black (reddish when moist), at first plane and marginate, sometimes finally convex and immarginate. Epihymenium pale to dark greenish brown or blue-green, K-, N+ red-violet (often with blue crystals). Exciple hyaline except outer edge

which is olive brown, K- or K+ purplish in part (especially above); cell lumina to 7(-10) μm wide towards outer edge and in lower part. Hypothecium in lower part hyaline, in upper part reddish- or yellowish-brown, K+ dull (\pm olivaceous) brown. Hymenium (35-)40-55 μm tall, hyaline. Paraphyses 1-1.5 μm wide, simple, lax; tips swollen to 6 μm and often pigmented. Spores (20-)25-40(-45) \times 1-2(-2.5) μm , indistinctly 3(-7)-septate, acicular. Pycnidia rare, 100-200 μm wide, \pm immersed, white; pycnosporos 20-35 \times 1 μm , 0-3-septate, curved-sigmoid. Thallus very thin, finely granulate, grayish, dull yellowish green, fawn or fawn-brown; granules (goniocytes) 15-60(-90) μm diam.; photobiont cells 5-12 μm diam. On shaded, non-calcareous rocks (e.g., sandstone) and flints, sometimes on mosses, rarely on shaded willows or on rabbit droppings.

Bacidina egenuloidea

Spores 25-40 \times 1 μm , 6-9-celled. Thallus granulate, thick, dirty olive. Apothecia to 0.4 mm, plane, yellowish brown and darkening. On granite, Ohio.

B. inundata (Fr.) Vezda

Growing at edge of streams or on water-dripped surfaces, more rarely lake margins, often where shaded by overhanging trees, on hard, non-calcareous rock or old wood. Apothecia rosaceous, pale to dark brownish red to yellowish brown or blackish, plane, persistently marginate, to 0.6(-1) mm, plane to convex; margin often paler, becoming excluded. Hypothecium yellow to pinkish brown or darker above and hyaline to pale brown, pale straw or purplish below, distinctly K+ violet, rarely K-. Exciple colorless or pale straw or brownish but usually dark brown above; cell lumina 2.5-5(-7) μm wide in outer and lower parts; hymenium 45-55 μm , hyaline or at least the epihymenium often pale pink-brown or purplish brown, K \pm purplish or K-; paraphyses 1-1.5(-2) μm wide, simple or a few forked above; tips often swollen to 3.5(-5) μm ; spores 20-43 \times (1-)2-3 μm , thinly 3(-7)-septate, acicular. Thallus grayish to whitish green, gray-green or greenish fawn, rimose, the surface granular-warted, usually with a conspicuous, white bordering prothallus; photobiont cells 5-12(-17) \times 5-12 μm . Pycnidia \pm immersed, of two types: (a) 100-200 μm diam, whitish, with pycnosporos 23-47(-55) \times 0.5-1 μm , faintly 3-septate, curved; (b) dark brown, with wall brown (\pm purplish) and pycnosporos 11-15(-19) \times ca. 1 μm , curved. [If epithecium brown or olive brown, and growing on calcareous rocks in dry habitats, see "B. cf. inundata" of Gowan, 1988; she states that the epithecium of true B. inundata is usually aeruginose, which disagrees with the description above based on Coppins].

B. phacodes (?--listed by Esslinger as an accepted species, but also as being a misidentification of B. californica)

B. ramea S. Ekman

B. squamellosa S. Ekman

B. varia S. Ekman

Literature

Ekman, S. 1995.

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