

Bactrospora Massal.
(ARTHONIALES: OPEGRAPHACEAE s. lato: BACTROSPORACEAE)

After Egea & Torrente (1993)

Rev. 5/94

Thallus crustose, immersed or \pm superficial, thin, continuous, scurfy, uniform or \pm rimose; prothallus indistinct; cortex absent. Photobiont Trentepohlia.

Ascomata apothecioid, mostly sessile, constricted at base, black or black-brown; disc widened, epruinose; thalline exciple absent; true exciple persistent, dark red-brown at outer edge, paler within, pigment K+ blackish olive; surface of excipular hyphae with crystals; hypothecium colorless; hymenium colorless, I- or I+ blue; hymenial strands absent (monocarpocentral); epihymenium pale to dark red-brown; paraphysoids sparsely and dichotomously branched, anastomosed; apices not swollen, richly branched; asci narrowly clavate to cylindric, easily separated from ascogenous hyphae; fissitunicate, outer and inner endoascus slightly hemiamyloid, the apex with a narrow K/I \pm pale blue apical dome penetrated by a small ocular chamber that is sometimes surrounded by a small K/I+ dark blue, ring-like zone; 8-spored (sometimes appearing multispored due to fragmentation of spores within the asci); spores acicular, cylindric or biclavate, 3-45-septate, often easily fragmenting into part spores (spherical, cuboid or rectangular), hyaline at all stages, without gelatinous sheath.

Pycnidia immersed to subimmersed; apical wall around ostiole dark brown, K+ green-black, pale below; conidia simple, bacilliform or long-ellipsoid, with \pm rounded ends; macroconidia absent. Secondary chemical products absent, or occasionally unknown substances present. Usually in dry recesses in bark of medium-aged to old broad-leaved trees, in lowland, often coastal areas, tropical to temperate.

Parts of the above description that are after James & Purvis are based only on the species with fragmenting spores, and may not apply to other species that are now included in the genus.

Taxa which are similar to Bactrospora (but never have fragmenting spores, and have asci not easily separated from ascogenous hyphae and with a strongly hemiamyloid inner endoascus) include:

Opegrapha vulgata group (spores with gelatinous sheath, brownish when old, fusiform to acicular; paraphysoids richly branched; excipular hyphae without crystals; ascomata lirelliform, not constricted, with slitlike to slightly widened disc).

Lecanactis abietina group (disc pruinose; hymenial strands present; spores fusiform or spermatoid, becoming brownish when old; pycnidia in protuberances; macroconidia present; with schizopeltic and lecanoric acid).

Ascomata apothecioid, sessile, constricted at base; disc widened, epruinose; surface of excipular hyphae with crystals; hymenial strands absent (monocarpocentral); paraphysoids sparsely and dichotomously branched; asci cylindric, easily separated from ascogenous hyphae; outer and

inner endoascus slightly hemiamyloid; ascospores acicular, cylindric or biclavate, 3-45-septate, often easily fragmenting into part spores, hyaline at all stages, without gelatinous sheath. Pycnidia immersed to subimmersed; macroconidia absent. Secondary chemical products absent, or occasionally unknown substances present. Usually on bark, in lowland, often coastal areas, tropical to temperate.

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1. Ascospores of the Dryina-type (acicular with even surface when young, but soon fragmenting in the asci into unicellular or paucicellular segments; cells usually longer than wide or \pm roundish). 2

1. Ascospores of other types (not fragmenting?; acicular with long cells, or wider with wide cells). 3

2. Excipulum and subhymenium K/I+ deep blue (K/I = Lugol's iodine after pretreatment with KOH). Ascospores \pm straight in asci; cells of spores 3-8 x (1-)2-3 μ m, cylindrical. Asci 70-100 x 10-13 μ m. Reported from N. America but not definitely confirmed. B. dryina (Ach.) Massal.

2. Excipulum K/I-; subhymenium K/I+ pale blue. Ascospores or spirally arranged in asci; cells of spores 2-4(-5) x 2-3 μ m, roundish. Asci 90-135 x 10-12 μ m. California. B. spiralis Egea & Torrente

3. Ascospores of Patellarioides-type (very narrow, not constricted toward center; cells ca. 2 x as long as wide). Excipulum K/I- or + deep blue; subhymenium K+ pale to sky blue or deep blue. 4

3. Ascospores of Jenikii- or Homalotropa-type. (relatively wider, constricted in middle; cells most slightly wider than long). Excipulum and subhymenium K/I+ deep blue. Thallus and ascomata glabrous (without hairs). 7

4. Excipulum and subhymenium K/I+ deep blue. Excipulum and pseudoepithecium without granules. Excipulum rather thin, to 30-35 μ m at top, to 40-50(-75) μ m at base. Ascomata with smooth margin or immarginate. 5

4. Excipulum K/I-; subhymenium K/I+ pale to sky blue. Excipulum and/or pseudoepithecium with or without granules. Excipulum well developed, closed or open below the subhymenium. 6

5a. Asci (80-)90-135 x 11-13(-14) μ m. Spores 57-85 x 2.5 μ m, 12-17(-26)-septate, acicular, difficult to dislodge from ascus, apparently 8, hyaline, usually straight but occasionally curled in ascus. Thallus crustose, thin to thick, farinose, forming scattered patches, whitish to yellowish gray. Apothecia common, adnate, round to usually slightly irregular, constricted slightly at base, 0.2-0.5 mm wide; proper margin entire, thin, even, soon excluded; disc plane, becoming convex, epruinose, but surface uneven and appearing pebbly, black. Hypothecium medium brown; exciple black; epithecium brownish; hymenium hyaline, 80 μ m, I-; paraphyses slightly branched but distinctly free; asci bitunicate. Pycnidia common, partially immersed to adnate, black, 0.05 mm wide; pycnosporos cylindrical, 8-10 x 1 μ m. On bark (PIcea), maritime, British Columbia. B. patellarioides (Nyl.) Vainio (syn. Lecanactis patellarioides)

5a. Asci less than 90(-110) μ m. Ascospores less than 60(-75) μ m. 5b

5b. Asci 70-90 x 14-16 μ m. Ascospores (44-)55-75 x (3-)3.5-4 μ m, (10-)14-24-septate. Excipulum to 25-30 μ m at the top, 25-40(-70) μ m at the base, open below the subhymenium or in some sections reduced to a narrow band. Ascomata immarginate. Exciple and subhymenium IKI+ deep blue; base of hymenium IKI+ pale blue turning reddish; Canada. B. brodoi Egea & Torrente

5b. Asci 55-75(-80) x 11-13 um. Ascospores 33-56(-65) x (2.5-)3-3.5 um, 5-9(-12)-septate. Excipulum 15-35 um at the top and 30-50(-75) um at the base, closed or open below the subhymenium. Ascomata with thin, smooth margin or margin \pm excluded. Parts of exciple, subhymenium and base of hymenium IKI+ reddish or deep blue. Florida. B. mesospora R. C. Harris

6a. Excipulum and/or pseudoepithecium without granules. Asci 90-130 x 10-12 um. Ascospores 65-95 x 2-2.5(-3) um, 14-23-septate. Thallus white, smooth, thin, with Trentepohlia. Apothecia less than 0.6 mm diam., black, with distinct margin when young; disc flat to convex; epithecium dark olive-green; hypothecium dark throughout, I-, without granules under polarized light; asci cylindrical; spores acicular. On oaks in humid, rather shaded situations. Recently found on Channel Islands of S. California. Not yet reported from N. America. B. acicularis (Dodge) Egea & Torrente

6a. Excipulum and/or pseudoepithecium with yellowish to reddish granules visible under polarized light. 6b

6b. Some ascomata with margin denticulate-stellate. Asci 105-140(-150) x 10-12 um. Ascospores 70-130 x 2-2.5(-3) um, 18-26-septate. Granules usually not extending over the excipulum. Excipulum to 40 um thick at top and to 125 um at the base. No substances. Florida. B. denticulata (Vainio) Egea & Torrente

6b. Margin of ascomata smooth. Asci 70-95(-110) x 9-12 um. Ascospores 12-20-septate, 47-85(-90) x 2-3(3.5) um. Epithecial granules also extending over excipulum. Excipulum 25-50 um at top and 65-120 um at base. Containing unknown substance. Florida. B. myriadea (syn. B. nematospora R. C. Harris)

7. Ascospores of Jenikii-type (few-septate), 20-32(-35) x 3-3.5(-4) um, 3-6(-7)-septate. Asci (45-)50-70 x 10-12 um. On lignum or bark of Taxodium. Florida. B. brevispora R. C. Harris

7. Ascospores of Homalotropa-type (many-septate), (60-)70-98 x (6-)7-10 um, (18-)20-28-septate. Asci 110-150 x 23-33 um. Florida. B. macrospora R. C. Harris

ADD:

Thallus K+ brownish, KC-, C-, P-. California. B. sp. (syn. Bacidia clementis)

Literature

Egea, J. M. and P. Torrente. 1993. The lichen genus Bactrospora. Lichenologist 25(3): 211-255.

Harris, R. C. 1990. Some Florida Lichens.

James & Purvis. 1992. Bactrospora. In: Purvis, et al., Lichen Flora of Great Britain and Ireland.