

Ephebe Fr.
(EPHEBACEAE)

After Henssen, 1963, Thomson, 1984, and others

Rev. 5/94

Thallus minutely fruticose, filamentous, in decumbent, greenish brown to brownish black tufts, attached by a holdfast, without a cellular cortex, \pm gelatinous; hyphae external to the photobiont when young, later also forming a central strand and ramifying in the gelatinous sheath of the photobiont.

Apothecia developing from pycnidia, solitary or aggregated, immersed in lateral swellings in the filaments, almost globose, punctiform; disk punctiform, almost closed; proper exciple thin; hypothecium hyaline, dense; hymenium gelatinous, the upper part brown, I+ bluegreen, K/I+ blue; paraphyses septate, sparsely branched, the apices thickened (paraphyses absent according to Rogers); asci cylindrical to obclavate, thinwalled, unitunicate, I+ blue; wall with K/I+ blue outer layer; apical dome absent; spores 8/16, simple or occasionally 12-septate, ellipsoid, hyaline, thin walled.

Pycnidia immersed in lateral globose swellings; conidiophores branched; conidiogenous cells enteroblastic, elongate ampulliform; fulcrum exobasidial (acrogenous), filiform; pycnosporangia ellipsoid to bacilliform, simple, colorless. No substances. Photobiont Stigonema. On damp siliceous rocks, often in seepage tracks. Mostly temperate.

Perithecia of parasites (Pharcidia and Didynella) may be present along with the ascocarps of Ephebe, causing confusion.

Fertile Specimens

1. **Spores beanshaped, curved, 8 per ascus.** Thallus 23 mm tall; branches thin (40-55 μ m), thickly set with pycnoascocarps, often angular in their place of formation; hyphae in young and old thalli in irregular network with angular cells.E. americana

1. **Spores not beanshaped or curved.**2

2. **Spores 8 per ascus.** (also see E. hispidula). 3

2. **Spores to 16 per ascus.** 4

3. **Branches thick (130-260 μ m), rigid, \pm regularly dichotomous,**

to 2 cm long; lateral branches aggregated at tips of main branches. Ascocarps 0.09-0.2 mm across, immersed laterally or terminally; paraphyses distinct to coherent-indistinct, the tips somewhat thickened; asci cylindric-clavate; spores oblong, 10-16 x 4.5 um. On usually exposed but frequently wet rocks. Reported by Fink from New England to Georgia and Alabama, but Fink's concept may include E. americana. The form called E. lesquereauxii (not mentioned by Egan) has a much larger, less loosely branched thallus and is sterile).
E. solida

3. Branches thinner, 70-140(200) um; branching ± irregular, not regularly dichotomous, to 1 cm long; lateral branches distributed over entire length of main branches (filaments smooth, rarely roughened by small thorn-branches, according to Poelt). Branches flaccid, bent back and forth; hyphae thin and with longitudinally extending cells, parallel and forming strands in the old parts, partially pseudoparenchymatous on the margins. Thallus tufted, hairlike or beardlike, to ca. 23 cm wide, often coalescing into extensive mats, black, matt. Apothecia rare, to 0.25 mm across, occurring as minute, ± concolorous structures in swellings on the branches, lateral. Spores 11-18 x 3.56 um, 0(10)-septate. Conidia 34.5 x 1.2-1.7 um. On siliceous rocks, predominantly on sloping surfaces and cliff faces, preferably where water trickles frequently, or near waterfalls. Arctic to temperate, ± northern, Appalachians and Great Lakes, California to British Columbia, and Rocky Mountains. E. lanata

4. Branches with few side branches. Thallus 12 mm tall; filaments 15-20(40) um thick. Pycnoascocarps entirely terminal. Hyphae thin or with angular cells, poorly seen in the algal gelatin and branching at right angles. Spores almost round, ca. 4.6 x 3.5 um. On moist cliffs, Greenland. [E. multispora (Dahl) Henss.]

4. Branches with side branches or branchlets along the whole length. Thallus (at least in E. hispidula) over 2 mm tall and with filaments at least partially over 40 um thick. Pycnoascocarps lateral. 5

5. Branches with occasional short, perpendicular lateral branches along main branches; young hyphae perpendicularly branched with angular cells, later with rows of large round cells. Thallus very small, threadlike, slightly branched, tangled, greenish blue or blackish; branches fine, cylindrical. Pycnoascocarps lateral, 0.2 mm wide; asci cylindrical, 60 x 9 um; spores 16 per ascus, broadly oblong or ellipsoid, 7-11 x 3.57 um. On rocks in streams, or near flowing water or spray. E.

ocellata

5. Branches roughened from numerous, short, spinelike lateral branchlets; young hyphae forming irregular network with angular cells; old hyphae with elongated and rounded cells, forming an irregular cell mass. Thallus 510(30) mm wide; filaments strongly branching at the base, ca. 70120 um thick at the base. Hyphae producing a tissue. Pycnoascocarps usually lateral, to 0.25 mm dim., rare, somewhat prominent, becoming subglobose, with an open disc. Spores 79.5 x 45 um, sometimes only 8 per ascus according to Gilbert. On damp, siliceous rocks, primarily on the banks of rivers and lakes. Arctic.E. hispidula

Sterile Specimens

1. Thallus 12 mm tall; filaments 1520(40) μ m thick. E. multispora
1. Thallus larger than 2 mm; filaments at least partially over 40 μ m thick. 2
2. Branches thick (130260 μ m), rigid, \pm regularly dichotomous; lateral branches aggregated at tips of main branches. E. solida
2. Branches not dichotomous; lateral branches distributed over entire length of main branches. 3
3. Hyphae thin and with longitudinally extending cells, parallel and forming strands in the old parts. Branches flaccid, bent back and forth. Thallus 2030 mm wide, with few, short, spinelike lateral branchlets. E. lanata
3. Hyphae when young in an irregular net with angled cell walls, when older forming an irregular cell mass. Thallus 510(30) mm wide, with numerous short, spinelike lateral branchlets. Older filaments with longitudinally attenuated and rounded cells. E. hispidula

ADD (to sterile key):

Branches with short, perpendicular lateral branches occasional along main branches; young hyphae perpendicularly branched with angular cells, later with rows of large round cells. Thallus very small, threadlike, slightly branched, tangled, greenish blue or blackish; branches fine, cylindrical. On rocks in streams, or near flowing water or spray. E. ocellata Henssen

Fink also lists E. mammillosum (Lyngb.) Fr. from Massachusetts but does not give a description; the name is not mentioned by Egan.

Literature

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