

## Aspicilia

After Various Authors

Rev. April 1996

### **I-A. Thallus tuberculate to dwarf fruticose, Growing $\pm$ loosely on soil**

After Rosentreter (in press), McCune & Goward,  
Szatala, and others

Thallus tuberculose to fruticulose, in the form of hemispherical, ellipsoid, angular to irregular, sometimes somewhat compressed compact lumps or tuberculae, or in the form of rounded-cylindrical, occasionally slightly compressed, curved, markedly branched outgrowths arising from areoles of the horizontal thallus, which spread vertically, then often horizontally.

**1. Thallus at least in part adnate to the substrate; habit not globose; pseudocyphellae laminal or lacking. Tuberculae  $\pm$  elongated, branched; thallus  $\pm$  fruticulose. .... 2**

**1. Thallus not attached to the substrate; habit globose; pseudocyphellae present only at the paired lobe tips. Tubercles globular, lenticular-compressed to irregularly flattened, coarse, 1-4 cm long, 1-2.5 cm wide. .... A. fruticulosa**

**2. Thallus usually erect, basally attached; lobes wide, becoming gradually thinner toward the acute tips; pseudocyphellae laminal. On thin, eroded,  $\pm$  calc. soil over sandstone or basalt. Eastern Montana, southern Idaho and eastern Oregon; my report from Washington is based on A. fruticulosa. .... Aspicilia hispida Mereschk.**

**2. Thallus creeping and attaching at several points along the lobes; lobes rather narrow, the same width nearly their entire length; pseudocyphellae lacking. .... 3**

**3. Medulla K+ rusty crystals (norstictic acid). Lobes generally  $> 0.3$  mm thick; tips mostly single. Spores (6-)8 per ascus. Chaparral, California. .... A. californica**

Rosentreter ined. (environmental modification of A. cinerea according to Weber)

**3. Medulla K- or K+ yellow. Lobes thin ( $\leq 0.3$  mm); lobe tips single or forked. Spores 2(-4) per ascus. Grassland or shrub-steppe habitats, Pacific NW or Great Plains. Lobe tips knobby to flattened. .... 4**

**4. Thallus more areolate and attached to soil with only occasional stringy sections (like beads on a string); thallus margins poorly defined; lobe tips similar in color and texture to main thallus; medulla K-. Cortex shiny and smooth. Spores 10  $\mu$ m. On bryophytes or soil (calcareous or not). Saskatchewan, (possibly south to Nevada?). Apparently widespread and often locally abundant in shortgrass prairie. .... A. reptans (Looman) Wetm.**

**4. Thallus predominantly narrow, elongated and stringy (appressed fruticose), lobe tips acute and distinctly different from the main thallus, often blackened with forked tips (like snakes' tongues); medulla K- or weakly yellow. Cortex dull and mottled. Spores (12-)18-26  $\mu$ m. Often associated with dead Poa clumps or other plant detritus, in sagebrush areas. Central Washington, eastern Oregon, southern Idaho, and**

Great Basin. Material from Washington was reported by Ryan as A. reptans. .....  
A. filiformia Rosentreter ined.]

ADD?:

Medulla K+ red (norstictic acid). Branches coarse (2-3 mm diam. [???]), terete; without pseudocyphellae or rhizines. Apothecia and spermogonia unknown. On clay soil among Eriogonum and Arctostaphylos, central California. .... [A. tuckeri Ryan in herb.; this is probably the same as A. californica]

**I-B. Thallus crustose,  
Growing firmly attached to soil or moss**

After Rosentreter (unpublished) and others

**1. Apothecia usually numerous, deeply sunken. Spores 30-52(-64) x 16-32 um. Thallus thick. In mesic microsites.** Spores 8 per ascus. Thallus continuous, verruculose, whitish to greyish. Apothecia up to 1.5 mm in width, sunken. Disk black, usually naked. Exciple black. On carbonate-rich soils, plant detritus, mosses or occasionally dead branches. Arctic-alpine. Widespread and common in western North America. ....(see Megaspora verrucosa)

**1. Apothecia rare, weakly to moderately sunken. Spores to 25 um long or wide. Thallus thin. In semi-arid habitats.** Medulla K-. .... 2

**2. Thallus K+ red.** Thallus areolate, papillate, rather bright blue-green. Generally on clumps of the moss Grimmia. .... (see A. mastrucata)

**2. Thallus K- or + weakly yellow.** ..... 3

**3. Thallus weakly adnate, with some lobe margins free; lumpy; on organic material or on soil.** ..... 4

**3. Thallus closely adnate when moist; on mineral soil.** Thallus thin, distinctly areolate; areoles often rounded, irregular, not very contiguous; thallus completely adnate. Apothecia rare or absent. Shrub steppe habitats. [Note: A. desertorum and other species that sometimes occur on small rocks embedded in the soil may also key out here] ..... A. terrestris Tomin

**4. Thallus mostly crustose but with thick irregularly lumpy lobes, directly on the soil, with occasionally areoles forming short, coarse, simple or irregularly divided spiniform outgrowths, forming more continuous thalli. Calcareous sites.** ..... A. aspera (Mereschk.) Tomin

**4. Thallus areolate with occasional ropy lobes, on organic material, lacking irregularly lumpy lobes, forming smaller, more diffuse thalli. Non-calcareous sites.** On bryophytes or soil (calcareous or not). Saskatchewan, south to Nevada. .... (A. reptans (Looman) Wetm.)

**A. californica Rosentreter**

Thallus fruticose, creeping and attaching at several points along the lobes, less than 30% of the thallus attached; lobes discrete, elongate, and stringy, to 30 mm long, 0.5-1.2 mm wide, terete, tips typically single, unbranched; surface when dry dull and irregularly white mottled, whitish to gray-green, remaining whitish in parts even when moist; pseudocyphellae lacking.

Apothecia rare, 0.2-1 mm diam., immersed; disc black, occasionally pruinose; margin entire, colored like thallus; hymenium 60 um, hyaline to brown, epihymenium HCl+, N+ green; hypothecium hyaline, 20-30 um thick; paraphyses moniliform; spores 8, subglobose, 5.5 x 4 um, or occasionally 6 and then 10 x 7 um.

Cortex K+ red, P+ orange, C-, KC-. Norstictic acid.

On organic matter, rock, moss and litter, in relatively warm chaparral habitats. California.

**A. filiformis Rosentreter**

Thallus appressed fruticose, creeping and attaching at several points along the lobes, mat-forming, less than 50% of the thallus attached; lobes discrete, elongate, and stringy, typically short (5-10 mm), contorted and irregular in length, up to 15 mm long, 0.4-1 mm wide, terete, tips distinctly different from the main thallus branches, often black with forked tips, like snake's tongue, forming a prothallus, surface when dry olive, brown, or greenish, turning bright to dull green when moist, pseudocyphellae lacking.

Apothecia rare, 0.5-1.5 mm diam., slightly immersed to sessile, disc reddish brown to black; margin entire, concolorous with thallus, rarely pruinose; hymenium 70-80 µm thick; epihymenium 15-20 µm, HCl+, N+ green; paraphyses moniliform; spores 2 per ascus, subglobose, variable in size, 18-26 x 16-24 µm diam., or occasionally 4 and then 12-16 x 11-16 µm.

Cortex K- or K+ weakly and slowly yellow, P-, C-, KC-. Often containing an unknown, K+ yellowish substance.

On organic matter, moss and dead grass clumps, in shrub-steppe and Columbia River grasslands habitats, Oregon, Washington, Idaho and Montana.

### **A. fruticulosa (Eversm.) Flagey**

Branching dichotomous, very compact; branches short, thick, blunt, ± expanded towards the tips into obtuse, clavate or subspherical tubercles, or partly narrowed but not acute or spiniform; pseudocyphellae conspicuous but present only on the paired lobe tips. Thallus composed entirely of branches tightly gathered together, diverging radially from a common center, initially attached by a central umbilicus, appearing shrub-like. The tubercles represent the clavate or subspherically expanded summits of the branches protruding on the thallus surface. Branches subdivided, partly somewhat flattened. Surface ochre-colored (according to Esnault; N. American material tends to be more grayish or brownish). Cortex very thick, 60-130 µm, cellular. Apothecia rare; spores 3-4 per ascus, 20-25 x 17-20 µm. Pycnidia rare; pycnosporos 15-21(-35) x 5-6 µm. Without lichen substances. On calcareous soils. Uncommon in eastern Montana, south-central Idaho, and eastern Oregon.

**Aspicilia hispida Mereschk.** (Syn.: Agrestia hispida, A. cyphellata; environmental modification of "Aspicilia calcarea" according to Weber)

Thallus erect, basally attached (but the attachment area is often broken); lobes becoming gradually thinner toward the acute tips; pseudocyphellae laminal. Branching irregular to dichotomous; branches short to elongated, generally tapering to acute, somewhat spiniform points at the tips, often delicate; pseudocyphellae scattered, not conspicuous on tips nor restricted to them. Thallus ± globose, without umbilicus. Branches 0.5-1.5 cm long, rounded-cylindrical or slightly compressed, ± broad, rapidly thickening toward the base, branched (particularly at the top). Cortex continuous; pseudocyphellae laminal, white, round, usually abundant along the entire length of the branches. Apothecia rare in fruticose forms, but fruticose forms can arise from and be continuous with fertile crustose forms. Epihymenium HNO<sub>3</sub>+ green. On thin, eroded, ± calc. soil over sandstone or basalt. Eastern Montana, southern Idaho and eastern Oregon; my report from Washington is based on A. fruticulosa).

### **A. reptans (Looman) Wetm.**

Thallus thick, continuous, areolate to nearly squamulose, of irregular, short, broad lobes, which are often coalesced and almost crustose in places, with only occasional elongated, strongly

convex or almost terete (ropy) lobes. Lobe tips generally more blunt and knobby but occasionally acute. Branches narrow (to 0.5-1 mm), branched; lobes irregularly constricted (like beads on a string), periodically adnate; few pseudocyphellae. Upper surface grey, lower surface whitish, with sparse, short rhizines; cortex 20 um thick.

Apothecia rare, at first urceolate, later adnate; disc black; margin entire, concolorous with thallus; asci clavate; spores 2 per ascus, subglobose, 10(-20?) um, thick-walled. Epihymenium HNO<sub>3</sub>+ green; tips of paraphyses moniliform.

Spermatia straight, 8 um long.

Thallus K-, C-, KC-, Pd-.

On bryophytes or soil (calcareous or not). Saskatchewan, (possibly south to Nevada?); my report from Washington was probably based on A. filiforma. Apparently widespread and often locally abundant in shortgrass prairie.

ADD??:

Thallus areolate, even, without lobelike or spiniform outgrowths; surface light grey or dark grey, yellow-grey, olive-colored, rusty-brown or rusty-red. Spores (3)4 per ascus, 20-25 µm diameter, spherical or broadly ellipsoid. Disc black, often pruinose. Steppes. .... A. desertorum f. terrestris

Spores 14-24 x 9-20 µm. Thallus thin, areolate-squamulose, pale greenish gray, K- (???-my notes elsewhere say the thallus is brown and K+ red), the squamules somewhat wrinkled, subimbricate, loosely attached, angular or with wavy or lobate margins. Apothecia to 0.8 mm, immersed to adnate, often clustered, the disk flat, black (brick red when wet), the margin thin, concolorous with thallus, becoming subcrenulate. Asci becoming saccate, the apical wall greatly thickened. Spores 4-10. subspherical to ovoid. On clay. S. California. Somewhere I got the idea that this taxon is a synonym of Megaspora verrucosa, but the red discs when wet and small spores do not fit that species. The type is very tiny and fragmentary, but my notes indicate that although the species does not belong in Lecanora it also doesn't fit Aspicilia. ....  
"Lecanora" glaucopsina

"Lecanora" glaucopsina Nyl.

Description from Zahlbruckner (1902):

Thallus squamulose; squamules continuous to subimbricate, incised-lobate to sinuous-lobate, subcrenate or subverruciform, 0.18-0.21 mm thick, rather soft, slightly rugose to subplane, 0.2-0.4 mm wide, at the margin here and there slightly ascending; upper surface glaucous to aeruginose-gray, lower surface white, without rhizines; upper cortex pseudoparenchymatous, 22-26 µm thick, cells subglobose to angular-globose, 5-9 µm wide; algal layer subcontiguous, algae chlorococcoid, 8-16 µm wide; medulla white.

Apothecia sessile, to 1 mm wide; discs concave to subplane, black, matt, epruinose; margin narrow, entire to subflexuous, grayish-black, persistent; exciple pseudoparenchymatous, containing few algae; hypothecium pale, hyphae dense; hymenium hyaline, 170-190 µm, I+ blue; epihymenium olive-brown; paraphyses filiform, conglutinate, towards tips slightly or moderately wider and submoniliform; asci oblong-clavate, slightly shorter than hymenium, 8-spored, wall not thickened; spores hyaline, simple, oblong- to broadly ovoid, 21-26 x 10-17 µm wide, thin-walled.

Pycnidia semiglobose, emergent, ostiole minute, black, wall dimidiate, fulcrum exobasidial, basidia lageniform-subulate, subverticillate, shorter than the pycnospores, pycnospores filiform, ± straight, apices rounded with slightly notched end, 21-26 x 1 µm.

Thallus K-, C-, I-.

On sandstone and granite, Santa Monica Mountains.