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## Cystoderma Notebook 1

L. R. Hesler

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Cystoderma

amianthinum  
amianthina var. sublongisporum  
amianthinum var. typicum

australe

cinnabarinum

granulosum

ponderosum

Cystoderma amianthinum (Fr.) Fayod

Pileus 1-3 cm. broad, convex, granulose-powdery, "warm buff" to "antimony yellow," disk darker.

Flesh thin, fragile, whitish; odor and taste mild.

Lamellae adnate, white, close, medium broad.

Stipe 3-6 cm. x 4-6 mm., scaly or granulose below the granular annulus, glabrous or fibrillose above, hollow.

Spores 6-8 x 3.5-4  $\mu$ , ellipsoidal.

On humus, moss hummocks, and soil, frondose-coniferous woods, Knox, Anderson, Blount (Park), Sevier, and Carter Counties, Tennessee; Swain and Macon Counties, North Carolina; June-November. A fairy ring, four feet in diameter, was formed by No. 14773.

Collections include var. sublongisporum Singer, and var. typicum f. rugosoreticulatum (Lorinser) Smith and Singer (Mich. Acad. Sci., Arts, and Letters 30:71-124. 1945).



16620 - *Cystoderma amianthinum* (Fr.) Fayod

CYSTODERMA AMIANTHINUM var. TYPICUM Sm. & Singer

Michigan Acad. Sci., Arts, & Letters, Papers 30:107. 1945

Pileus disk ochraceous, elsewhere pale lavender-flesh, fibrillose-scaly, tawny-yellowish in KOH.

Spores 4-5.5 x 2-2.5  $\mu$ , pseudo-amyloid. Pleurocystidia none; cheilocystidia clavate, 22-26 x 4-5  $\mu$ .

Habitat and Distribution. - On soil, in deciduous and conifer woods, Tennessee, North Carolina, August-November.



12296 - *Cystoderma amianthinum* f. *rugoso-reticulatum*  
(Körner) Smith + Singer

CYSTODERMA AUSTRALE Smith and Singer  
Papers Mich. Acad. Sci. 30:97-98. 1945

Lepiota australis (Smith and Singer) Murrill. Lloydia  
12:61. 1949

"Pileus about 15 mm. broad, nearly plane with a wavy elevated margin, surface dry and covered with small wartlike or pointed persistent scales, evenly dark rusty brown over all ("Verona brown" when dried), the colors similar to those of dark specimens of C. granulorum and both assuming the same color in drying; flesh thin, pallid, odor and taste not recorded; lamellae close, broad, adnate, white or whitish and only slightly discolored in drying, edges even; stipe about 20 mm. long, 2 mm. thick, curved, tinged with the color of the pileus or slightly more vinaceous, silky above, lower portion fibrillose-scaly with small scales similar in color to those of the pileus, no distinct annulus present, the zone left by the broken veil median or slightly lower.

"Spores 4-5.5 (6.5) x 2.7-3.4  $\mu$ , narrowly ellipsoid, smooth, nonamyloid or in mass slightly pseudoamyloid; basidia four-spored, hyaline in KOH, subcylindric to narrowly clavate, 16-22 x 5-6  $\mu$ ; pleurocystidia if present near the gill edge and similar to cheilocystidia; cheilocystidia abundant, similar in shape to those of C. cinnabarinum, 16-22 x 4-6  $\mu$ , the narrowed portion 1.5-4  $\mu$  thick; gill trama regular, the hyphae slightly interwoven, hyaline when revived in KOH; cuticle

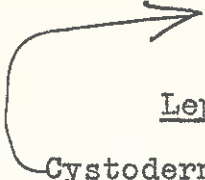
of pileus of ovoid to ellipsoid or elongated to somewhat irregularly shaped cells loosely arranged in chains, sphaerocysts not numerous, the walls smooth, slightly thickened and dull rusty brown in KOH; flesh of pileus including subcuticular hyphae hyaline or nearly so in KOH, hyphae loosely arranged, clamp connections abundant.

"Habitat. - Solitary on a decayed log on the ground.

"Distribution. - Known only from the type collection, Singer, F-1184, Matheson Hammock, Dade County, south Florida, Oct. 22, 1942 (FH).

"Observations. - Although this species has the same type of cheilocystidia as *C. cinnabarinum*, it is readily distinguished by its habitat on decaying nonconiferous logs, its southern distribution, the color of the pileus, and the stature of the carpophore. This combination of characters cannot be disregarded. From *C. granulorum*, in which it was placed at the time of its collection, it can readily be distinguished not only by its characteristic cheilocystidia but also by the difference in the coloring of the subcuticular hyphae in KOH. In *C. australe* the reaction is not much stronger than that found in *C. amianthinum* var. *typicum*; in other words, it is almost lacking."





Lepiota australis (Smith and Singer) Murrill

Cystoderma australe Smith and Singer (Papers Mich. Acad.  
Sci. 30:97. 1945).

Murrill's <sup>notes</sup> ~~description~~ (Lloydia 12:61. 1949):

"Described from Matheson Hammock, Dade Co., on a  
decaying log."

Cystoderma cinnabarinum <sup>A. + S. ex Rees.</sup> (Seer.) Fayod.

Pileus 2-6 cm. broad, convex, plane, granulose, under lens the granules as warts, "cinnamon-rufus," disk "orange cinnamon," <sup>paler when covered by debris,</sup> margin even.

Flesh white, soft; odor and taste slight.

Lamellae rounded adnate or adnexed, nearly free, white, broad behind, narrowed in front, crowded, edge fimbriate.

Stipe 2-3 cm. x 6-7 mm., granulose (as pileus) up to the superior, flaring, floccose annulus, white and silky above, bulbous, solid.

Spores ellipsoidal, <sup>3.5</sup> 4-5 x 2-3.5  $\mu$ , white in mass.

Cheilocystidia semi-nodulose, apex pointed and capped, 28-40 x 3-4.5  $\mu$ ; pleurocystidia few, <sup>brownish,</sup> 25-35 x 3-5  $\mu$  (apex), neck long, slender (1.5-2  $\mu$ ).

On soil, moss-hummocks, and humus, conifer woods, Knox and Anderson Counties, Tennessee, and Highlands, North Carolina, September-December.

23513 - *Cyrtoderma cinnabarinum* (A. + S. ex Secr.) Fayod



18331 - *Cyrtoderma cinnabarinum* (Peck.) Fayod



14354 - *Cyrtoderma cinnabarinum* (Seer.) Fayod

Cystoderma granulosum (Fr.) Fayod

Pileus 1.5-5 cm., dry, granular, near "ochraceous-orange" to "tawny-olive" (not exactly matched).

In humus and deep moss, conifer woods, Knox County, Tennessee, and Swain County (Park), North Carolina, September-November.

Flesh white to pallid, medium thin; odor mild, taste mild or slight. Lamellae rounded, adnexed, ventricose, white, rather broad, scarcely close, edges even or slightly rough. Stipes 2-4 cm. x 3-6 mm., equal or tapering upward slightly, granulose-  
sandy up to an annular zone, dingy ochraceous, stuffed.

Spores 3-4.5 x 2.2-3  $\mu$ , ellipsoid, smooth, white in <sup>mass</sup>, non-amyloid. Pluocystidia & Cheilocystidia none.

CYSTODERMA PONDEROSUM Smith & Singer

Mich. Acad. Sci., Arts, & Letters, Papers 30:92. 1945

Illustration:

Plate

Pileus 4-8 cm. broad, convex, finally expanding, at last wavy and lobed, dry, whitish but at first densely covered with "clay color" to "snuff brown," easily-removable warts, margin appendiculate with veil particles, even. Flesh white, thin; odor mild, taste slightly unpleasant <sup>sub-alkaline to oily:</sup> (~~oily~~). Lamellae adnate to subdecurrent, white, narrow, crowded to close, many short, edges even. Stipe 4-7 cm. x 8-12 mm., whitish, dry, densely floccose below the ring with veil remnants, equal to clavate-enlarged at base, spongy-solid. Veil floccose, soon breaking to leave remnant on pileus-margin, and a fugaceous annulus which at first is flaring.

Spores 2.5-3.8 x 2.2-2.7  $\mu$ , subglobose to short-ovoid or short-ellipsoid, smooth, non-amyloid. Pleurocystidia and cheilocystidia none.

Habitat and Distribution. - On mossy soil and log, Tennessee, July-<sup>Sept.</sup> August.

Cystoderma ponderosum Smith and Singer

Smith and Singer's description (Papers of Mich. Acad. Sci., Arts, and Letters 30:92-94. 1945):

"Pileus 4-11 cm. broad, broadly convex becoming plane, in age the margin wavy, lobed, uplifted in large carpophores in age, surface dry, squarrose-scaly over the disk from "ochraceous buff" to "clay color" or brighter yellowish-brown scales, toward the margin the scales more appressed and widely separated, allowing the pallid ground color to show, the scales more fibrillose than granulose in texture and consequently relatively persistent; flesh thick, whitish to pallid, odor and taste not recorded; lamellae moderately close, narrow, broadly adnate or with a decurrent tooth, near "light buff," edges even; stipe clavate, 6-8 cm. long, 8-15 mm. at the apex, base more or less white-mycelioid, white or whitish, the sheath thin and evanescent, soon broken up into small zones which are more or less concolorous with scales of pileus, annulus poorly formed and evanescent, somewhat fibrillose above the annulus, in largest carpophore distinctly fibrillose-pubescent to the apex, pubescence pallid buff.

"Spores 3-3.4 x 2.6-3  $\mu$ , broadly ellipsoid to subglobose, non-amyloid, smooth, hyaline in KOH; basidia 20-24 x 4.6-6  $\mu$ , four-spored, hyaline in KOH, yellowish in iodine; pleurocystidia and cheilocystidia not differentiated; gill trama hyaline in KOH, parallel to interwoven; flesh of pileus hyaline in KOH, of compactly interwoven hyphae 4-6  $\mu$  in diameter, clamp connections abundant; cuticle of pileus composed chiefly of interwoven tawny to russet hyphae 4-6  $\mu$  in diameter and both very much branched and very compactly interwoven as compared with other species, the walls with incrusting pigment, the scales with a few enlarged cells present but these seldom spheric or ellipsoid, instead rather somewhat angular or otherwise irregular in shape, the largest about 30 x 15  $\mu$ .

"Habitat. - On mossy soil on rocks, Mt. LeConte, Great Smoky Mountains National Park, Tennessee, July 26, 1942, L. R. Hesler, 14390.

"Distribution. - Known only from the type collection.

"Observations. - When the scales of the pileus are crushed, all the cells appear to be broken from their attachment and hence cannot be regarded as readily separable as in related species. The color of C. ponderosum is very distinct in the dried specimens, though when mounted in KOH the cuticular and subcuticular hyphae of both C. cinnabarinum and C. ponderosum are quite similar in color, and the more compact



arrangement present in the latter as well as the lack of sphaerocysts must be relied upon to distinguish it. Because of the difference in color of dried material it can readily be distinguished from all other species in the genus. This is the one species of Cystoderma that most closely approaches the section Acutesquamosae of the genus Lepiota. In fact, the structure of the cuticle, which is in the nature of trichoderms rather than an epithelium, recalls certain representatives of that section. However, the non-pseudoamyloid spores and the adnate lamellae cause us to consider C. ponderosum a true Cystoderma. The lack of cheilocystidia may serve as additional evidence that this species is not a Lepiota."



21469 - *Cystoderma ponderosum* Smith + Singer

*ameanthina* var. *sublongisporum* S. + S  
Cystoderma No. 18996

Pileus 2.5-4 cm., convex, umbonate at first, "raw sienna," disk "sudan brown," granulose-warty, warts largely disappearing in age, rugose to disk.

Lamellae adnate to advanced, seceding, white, close, edge even.

Stipe 25-35 mm. x 3-5 mm., granulose-warty up to granulose annulus, silky above, concolor, base enlarged.

Spores 6-7 x 4.1-4.5  $\mu$ , smooth, ellipsoidal.

Cystidia (none found).

In humus, Swain County (Park), North Carolina, June.



18996 - *Cyrtoderma amianthinum*  
var. *sublongisporum* S. + S.

CYSTODERMA No.25789

In deep needle-bed, pine woods, near Walland, Aug. 1, 1963.

Pileus white, densely scaly, recurved scales "ochraceous buff" or tips darker, more or less unbonate.

Lamellae white, close, medium broad.

Stipe whitish, scaly to glabrescent. Veil more or less powdery, leaving an obscure or evanescent superior annulus.