

## STUDIES ON NEW ENGLAND AGARICS, I.

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In the following contribution, one species in *Collybia*, *C. compressiceps*, and two in *Mycena*, *M. macilenta* and *M. madorophila*, are described as new to science. The proper generic status for *Clitocybe marginata* Peck also has been determined, resulting in the proposal of a new combination, *Callistosporium marginatum*. An interesting and uncommon *Amanita* of hardwoods, *A. spreata* of Peck, is described from Massachusetts specimens.

The colors noted in the descriptions are those of Ridgway (1912).

***Amanita spreata*** (Peck) Saccardo, Syll. Fung. 5: 12. 1887.  
*Fig. 1.*

*Agaricus spretus* Peck, New York State Mus. Rep. 32: 24. 1879.

Pileus 3-11 cm broad, obtuse conic with incurved margin at first, becoming broadly convex and finally plane, margin sometimes elevated in age, striate, slightly umbonate at times in large expanded caps, surface subviscid but soon dry, dull, glabrous and smooth, innately fibrillose in places and  $\pm$  radiate toward margin, dark gray brown to umbrinous young, becoming pale gray brown in age, disc usually remaining dark, extreme margin pallid at times; context thin, soft but brittle, white. Odor none.

Lamellae free or slightly adnexed, close, medium broad (up to 12 mm), tapered at ends, white, edges crenate under a lens.

Stipe 7-17 cm long, apex (4-)10-15 mm thick, equal or tapering upward, base up to 2.5 cm thick, sheathed by distinct volva, curved near base at times, stuffed, pruinose to furfuraceous above annulus, scabrous to innately fibrillose below, white but becoming dingy on bruising.





Fig. 1. *Amanita sprete* (Peck) Saccardo  $\times 1$ .



Annulus white but grayish or brownish in age, membranous but fragile, flared, soon pendant, only slightly striate on top, fibrillose and dull on both surfaces, superior.

Volva white, cuplike, even or more often split at top 1-3 times, somewhat flared, up to 3.5 cm long.

Spores (9-)10-12(-13)  $\times$  6.5-8  $\mu\text{m}$ , elliptic, smooth, not amyloid, deposit white. Basidia 33-45  $\times$  8-10  $\mu\text{m}$ , 4-spored, hymenium pale dingy yellowish in mass in KOH. Pileus surface hyaline in KOH, consisting of a layer of hyphae which gelatinize,  $\pm$  cylindric but usually curled and flexuous, subsurface layer brownish in KOH, pigment intracellular, hyphae cylindric, 2-6(-8)  $\mu\text{m}$  diam.; context of cylindric or broad cylindric hyphae, 3-13  $\mu\text{m}$  diam., rarely with oleiferous hyphae, clamp connections present. Hymenophoral trama parallel or slightly divergent in unexpanded specimens, undulate-subparallel in old specimens, hyphae cylindric, 2-8  $\mu\text{m}$  diam., or somewhat inflated, up to 20  $\mu\text{m}$  diam. Annulus consisting of a mixture of sphaerocysts and hyphae, hyphae cylindric, 2-3.5(-9)  $\mu\text{m}$  diam., sphaerocysts 10-45  $\mu\text{m}$  diam., walls thin, clamp connections present. Volva mostly of cylindric hyphae, 2.5-10  $\mu\text{m}$  diam., clamp connections large and abundant, walls slightly thickened at times, occasional oleiferous hyphae, occasional ellipsoid cells, 27-52  $\mu\text{m}$  diam.

Single or scattered. In grassy and herbaceous open area, scattered hardwoods of beech and oak. August.

Material examined. **Massachusetts:** *Bigelow* 14723, 15797, 15805 (MASS).

In my experience, this species does not appear to be common in New England; also, there are relatively few reports in the literature. Pomerleau (1966) has noted fruitings in adjacent Quebec, and of course Peck's first specimens were found in New York State.

The distinct sheathing and free-margined volva of *Amanita sprete* separates it easily in the field from most Amanitas which have similar colors to the pileus (e.g., *A. brunnescens*, *A. pantherina*, *A. excelsa*). However, *A. phalloides* has the same volval type as *A. sprete*, and the



pileus can fade to an umbrinous color like that of *A. spreata*. Conceivably, the two species could then be difficult to distinguish. Microscopic characters of course are distinctive — *A. phalloides* has amyloid, globose to subglobose spores and no clamp connections on hyphae of the basidiocarp. Thus far, I know of no collections of the true *A. phalloides* in New England, but its presence is quite possible in view of the reports by Tanghe and Simons (1973) of fruitings in New York, New Jersey and Pennsylvania.

***Callistosporium marginatum* (Peck) Bigelow, comb. nov.**

Basionym: *Clitocybe marginata* Peck, Bull. Torrey Bot. Club 29: 558. 1902.

*Monadelphus marginatus* (Peck) Murrill, Mycologia 7: 282. 1915.

"Pileus fleshy, rather thick, subcampanulate, becoming convex, obtuse or broadly umbonate, glabrous or nearly so, dry, bay red verging to mahogany color, the margin at first involute, flesh yellow; lamellae narrow, close, decurrent, yellowish, reddish on the edge; stem nearly equal, stout, hollow, glabrous, shining, yellowish marked with reddish longitudinal lines; spores subglobose, 5  $\mu$ m long, 4-5  $\mu$ m broad. Pileus 5-8 cm broad; stem 5-8 cm long, 6-12 mm thick. Cespitose; growing around decaying stumps. September."

From the type specimens (NYS) the following data on microscopic characters were obtained:

Spores 5-6.5  $\times$  3.5-4.5  $\mu$ m, elliptic, smooth, not amyloid, some with vinaceous globules inside in KOH. Basidia 23-40  $\times$  6-8  $\mu$ m, 4-spored, containing vinaceous globules at times. Cystidia absent. Pileus cutis pale vinaceous in KOH, pigment encrusted on hyphae and in cell contents, hyphae cylindric, 2-4.5  $\mu$ m diam.; context hyphae cylindric or inflated, 4-13  $\mu$ m diam. Hymenophoral trama of undulate-subparallel hyphae, cylindric or inflated, 1.5-13  $\mu$ m diam. Oleiferous hyphae present. Clamp connections absent.

The type was collected in Maine by Viola S. White. Only one basidiocarp is presently at Albany in the collection.



This species is robust and less collybioid in habit than others known in *Callistosporium*, but there is no doubt that this is the correct genus. The distinctive pigment globules in the spores, the absence of clamp connections, and a wood substrate provide the critical diagnostic characters. *Callistospermum marginatum* bears no resemblance in the field to the other species known in New England, i.e., *C. luteoolivaceum* (Berk. & Curt.) Singer (cfr. Bigelow and Barr, 1966). Instead, *C. marginatum* as described, and also in its dried state, recalls *Tricholomopsis rutilans* (Fr.) Singer. This of course is distinguished by prominent cheilocystidia, the presence of clamp connections, and a squamulose pileus.

**Collybia compressiceps** Bigelow, sp. nov. Figs. 2, 5, 6.  
HOLOTYPE: **Massachusetts**: Leverett, Cibula & Miller (Bigelow 15758) (MASS).

Pileus 1-6 cm latus, convexus tum late convexus, interdum conicus et compressus, haud striatus, glaber, udus sed haud hygrophanus, asper, badius; contextus tenuis, fragilis, albidus. Lamellae adnexae, confertae vel confertissimae, angustae, pallido-bubalinae. Stipes 5-12 cm longus, 5-13 mm crassus, deorsum plerumque attenuatus et radicans, saepe curvatus et tortuosus, cavus, striatus, sursum bubalinus, deorsum basius. Sporae (6.5-)7-9  $\times$  3.5-4  $\mu$ m, in cumulo eburneae. Cheilocystidia 21-65  $\times$  4.5-6.5  $\mu$ m, irregulariter cylindrici. Hyphae fibulatae. Lignatilis.

Pileus 1-6 cm broad, convex with an incurved margin, not striate, becoming broadly convex, sometimes conic by flattening from mutual pressure, shape  $\pm$  triangular at times, slightly and broadly umbonate at times, margin often inrolled, sometimes undulate, glabrous and moist but not hygrophanous, surface uneven and with numerous small bullae, reddish brown ("chocolate" when darkest, "Hays brown" or "Kaiser brown" at times); context thin, brittle, whitish ("pale pinkish cinnamon", "pale pinkish buff"). Odor not distinctive. Taste very slightly acrid.





Fig. 2. *Collybia compressiceps* sp. nov.  $\times 1$ .



Lamellae adnexed, close to crowded, narrow (up to 3 mm), forked at times, not intervenose, anastomosed at times, pale buff ("pale pinkish buff"), even and straight to eye, finely crenate to fimbriate under a lens.

Stipe 5-12 cm long, apex 5-13 mm thick, conspicuously twisted and fibrous, base usually tapered and rooting, closely appressed — slightly adherent but not forming a common fleshy mass, hollow, often curved and flexuous, thin pruinose or slight pubescence in places, soon appressed then  $\pm$  longitudinally striate, pale buff above, irregularly reddish brown below, base white mycelioid and with rhizoids.

Spores (6.5-)7-9  $\times$  3.5-4  $\mu\text{m}$ , elliptic in face view, often lacrymoid in side view, smooth, not amyloid, deposit "ivory yellow". Basidia 21.5-30  $\times$  4.5-7  $\mu\text{m}$ , 4-spored. Cheilocystidia irregularly cylindric, 21-65  $\mu\text{m}$  long, 4.5-6.5  $\mu\text{m}$  broad, hyaline, smooth, 2-celled at times. Pileus cutis brown in KOH, pigment coarsely encrusted, hyphae cylindric, 2.5-6.5  $\mu\text{m}$  diam., intermixed with subclavate end cells,  $\pm$  8  $\mu\text{m}$  diam., walls usually smooth, recumbent or erect; context hyaline, hyphae usually cylindric, 4-11  $\mu\text{m}$  diam., walls slightly thickened at times. Hymenophoral trama of parallel hyphae, hyaline, cylindric, 3-5  $\mu\text{m}$  diam. Oleiferous hyphae present. Clamp connections present.

Cespitose. On hardwood log. August. Known only from the type collection at present.

By the stipe characteristics and its colored spore deposit, *Collybia compressiceps* obviously belongs to section *Stripedes*. There is some general resemblance to *C. fusipes* (Fries) Quélet, but this has spores 4-6  $\times$  3-4.5  $\mu\text{m}$ , a hygrophanous pileus, and broad, distant lamellae. In comparison with other taxa in the section, *C. compressiceps* is distinguished from a number of them by its relatively long spores; from the remainder, *C. compressiceps* is separated by its encrusted pigments and prominent cheilocysts in conjunction with its cespitose growth on hardwood logs.



***Mycena macilenta*** Bigelow, sp. nov. *Figs. 3, 7-9.* HOLOTYPE: **Massachusetts:** Ruggles Pond, Wendell State Forest, *Bigelow 15801 (MASS).*

Pileus 5-35 mm latus, convexus, striatus, interdum elevatus vel lobatus, discus interdum depressus vel umbonatus, impolitus, hygrophanus, margine umbrinus dein pallido-fuliginus, discus atrofuscus dein fuliginus. Contextus succosus. Lamellae decurrentes, subdistantes vel distantes, angustae vel sublatus, cinereus. Stipes 1.5-5 cm longus, 1-2 mm crassus, succosus, pallidus vel pallido-fuliginus. Sporae 7-9(-10)  $\times$  4.5-5.5(-6.5)  $\mu\text{m}$ , amyloidae. Cheilocystidia 40-50  $\times$  7-11  $\mu\text{m}$ . Pilocystidia 40-100  $\times$  10-30  $\mu\text{m}$ . Lactihyphae adsunt. Hyphae fibulatae.

Pileus 5-35 mm broad, convex at first with an incurved margin, becoming broadly convex, striate, margin elevated or lobed at times, lacerate in age, disc sometimes depressed in age, rarely umbonate, surface moist and hygrophanous, dull, margin black brown at first ("Saccardo's umber" to "sepia"), disc blackish, slowly fading to pale gray brown on margin and fuliginous on disc, then opaque; context thin, firm but rather brittle, concolorous with pileus surface, watery juice when broken. Odor and taste not distinctive or odor radishlike.

Lamellae short decurrent, finally moderately decurrent, subdistant to distant, narrow to medium broad, pale cinereous to cinereous, brownish in age, edges even or uneven, not marginate.

Stipe 1.5-5 cm long, 1-2 mm thick, equal or apex slightly enlarged, brittle, with watery juice when broken, surface moist, glabrous or apex sometimes slightly pruinose, straight or curved, pallid to pale fuliginous.

Spores 7-9(-10)  $\times$  4.5-5.5(-6.5)  $\mu\text{m}$  (4-spored form), mostly elliptic, at times subovate or subreniform, smooth, amyloid, deposit white. Basidia 27-38  $\times$  5.5-7.5  $\mu\text{m}$ , 4-spored. Cheilocystidia scattered, broadly cylindric to basidioid or clavate, 40-50  $\mu\text{m}$  long, 7-11  $\mu\text{m}$  diam., hyaline or





Fig. 3. *Mycena macilenta* sp. nov.  $\times 1$ .

faintly grayish, slightly refractive, protruding one third to one half of length. Pleurocystidia absent. Pileus: pileocystidia broadly cylindric, clavate, or subsaccate, 40-100  $\mu\text{m}$  long, 10-30  $\mu\text{m}$  diam., hyaline, smooth, dense or scattered; context hyphae cylindric or inflated, 3-19  $\mu\text{m}$  diam., appearing somewhat hymeniform in radial section, walls thin or thickened, lactifers present (up to 9  $\mu\text{m}$  diam.). Hymenophoral trama of interwoven to undulating-subparallel hyphae, mostly cylindric, 3-13  $\mu\text{m}$  diam. Clamp connections present (4-spored form).



Scattered, gregarious or subcespitose. On *Polytrichum*, soil and needles, under *Pinus strobus* or *Alnus*. July and August.

Material examined: **Massachusetts:** *Bigelow* 15801 (type), 15709 (MASS). **Vermont:** *Bigelow* 13081 (MASS). ***Mycena madorophila*** *Bigelow*, sp. nov. *Figs. 4, 10-12*. HOLOTYPE: **Massachusetts:** New Salem, *Bigelow*, *Bigelow & Miller* (*Bigelow* 15484) (MASS).

Pileus 8-15 mm latus, convexus vel hemisphericus dein planus, striatus, tandem discus subumbilicus et rugulosus, glaber, hygrophanus, discus fuscus, margin umbrinus, pallescens. Contextus succosus. Lamellae adnatae dein decurrentes, subdistantes vel distantes, extremis angustatae, griseus. Stipes 1.5-2.8 cm longus, 0.5-1 mm crassus, aequalis, fragilis, glaber, sordido-pallidus vel basis fuscans, succosus. Sporae 6-9  $\times$  4-5  $\mu$ m, ellipticae, leves, amyloideae. Cheilocystidia 15-35  $\times$  6-10  $\mu$ m; pleurocystidia dispersi, 15-33  $\times$  4-6  $\mu$ m. Lactihyphae adsunt. Hyphis fibulatae. *Muscophilus*.

Pileus 8-15 mm broad, convex or hemispheric at first, expanding slowly to broadly convex then plane, margin striate from first, vertical but not incurved, subumbilicate in largest caps and rugulose about disc, glabrous, moist and hygrophanous, disc blackish and margin dark brown at first (nearest "Saccardo's umber"), paler with expansion then disc and striae a rather dark gray brown (nearest "buffy brown" to "olive brown"), sordid dark buff between striae, fading very slowly overall to pale gray brown; context thin, soft, concolorous with surface, watery juice when broken. Odor and taste not distinctive.

Lamellae broadly adnate then distinctly decurrent, subdistant to distant, moderately broad in center, narrow at ends, not forked or intervenose, pale gray (nearest "drab gray"), edges even and concolorous with faces.

Stipe 1.5-2.8 cm long, 0.5-1 mm thick, equal, fragile, glabrous, dingy pallid at apex, gradually darker at base with cap colors or dingy pallid the whole length, watery juice when broken.

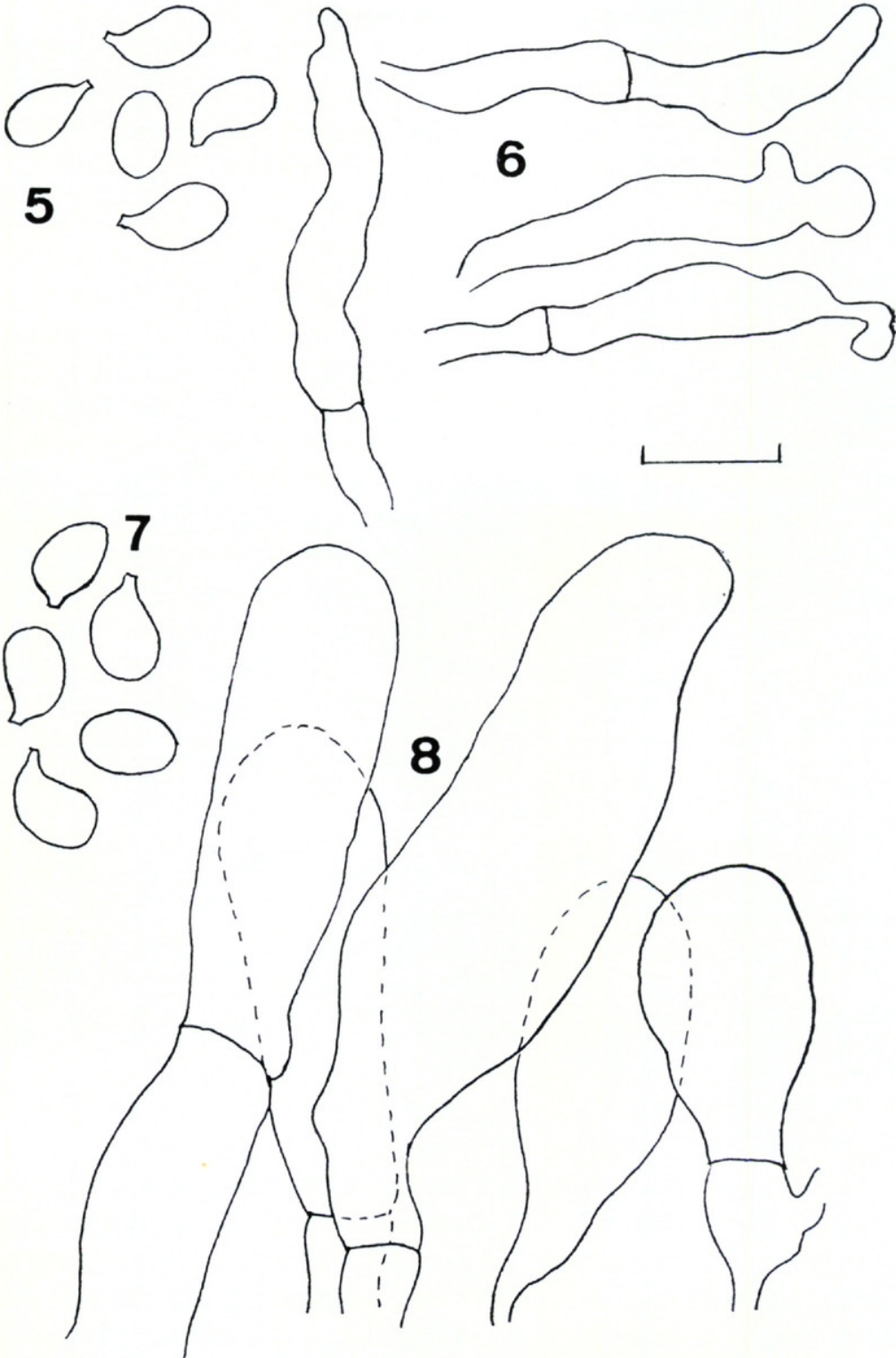




Fig. 4. *Mycena madorophila* sp. nov.  $\times 2$ .

Spores  $6-9 \times 4-5 \mu\text{m}$  (4-spored form), elliptic, smooth, amyloid. Basidia  $22.4-43.5 \times 6-8 \mu\text{m}$ , 4-spored. Cheilocystidia abundant, clavate or broad cylindric, sometimes subfusoid and ventricose,  $15-35 \mu\text{m}$  long,  $6-10 \mu\text{m}$  broad. Pleurocystidia scattered and inconspicuous, rather refractive, subclavate or basidioid but irregular,  $15-33 \mu\text{m}$  long,  $4-6 \mu\text{m}$  broad. Pileus cutis very thin, of cylindric and flexuous hyphae,  $2.5-6 \mu\text{m}$  diam., cells often short, sometimes slightly inflated or nodulose, hypoderm of cells  $18-40 \mu\text{m}$  broad, remainder of context of hyphae cylindric or somewhat inflated,  $2-8 \mu\text{m}$  diam., numerous lactifers present (up to  $11 \mu\text{m}$  diam.). Hymenophoral trama of interwoven to undulate-subparallel hyphae, cylindric or slightly inflated,  $2-5 \mu\text{m}$  diam., lactifers present (up to  $8 \mu\text{m}$  diam.). Clamp connections present (4-spored form).





Figs. 5 & 6. *Collybia compressiceps*: 5. spores, 6. cheilocystidia;  
 Figs. 7 & 8. *Mycena macilenta*: 7. spores, 8. pilocystidia.  
 standard line = 10  $\mu$ m.



Solitary or scattered. On wet moss or moss-covered wood. July and August.

Material examined: **Massachusetts:** *Bigelow* 15484 (type), 15486, 15828 (MASS). **Vermont:** *Bigelow* 13378 (MASS).

The two preceding *Mycenas* belong to section *Hydropus* (ss. Smith, 1947), and they are distinguished from one another primarily by differences in cystidia. In *Mycena macilenta*, pilocystidia are present and pleurocystidia are absent, while in *M. madorophila* the pileus cutis is composed of filamentous hyphae and pleurocystidia are present. On the present collections of both species, there also appear to be distinctions in habitats, the sizes of basidiocarp, and in the degree of development in the hypodermal layers. Of additional interest is that one collection of each species had only 2-spored basidia. In *M. macilenta* (*Bigelow* 13081) the spores were the same size as in the 4-spored form, but in *M. madorophila* (*Bigelow* 13378) they were (7-)8.5-10(-11)  $\times$  (4-)5-5.5(-7)  $\mu\text{m}$ . Clamp connections were absent at the septa of hyphae in basidiocarps of both collections.

The relationships of these two species within the section *Hydropus* seem closest to *Mycena umbrina* Smith and *Mycena marginella* var. *rugosodisca* (Peck) Smith. *Mycena macilenta* and *M. madorophila* both differ from *M. umbrina* by having lamellar cystidia and lacking caulocystidia. In comparison with *M. marginella* var. *rugosodisca*, the two species have larger spores, lack caulocystidia, and do not grow on conifer wood.

*Mycena arenaria* Smith also has a number of characteristics in common with *M. macilenta* and *M. madorophila*, although Smith placed *M. arenaria* in sect. *Omphalariae*. Both new species lack any caulocysts as typical of *M. arenaria*. In addition, *M. macilenta* has larger pilocysts which are mostly clavate or saccate while *M. madorophila* has a distinct hypoderm and no pilocysts — contrary to the pileus structure of *M. arenaria*.



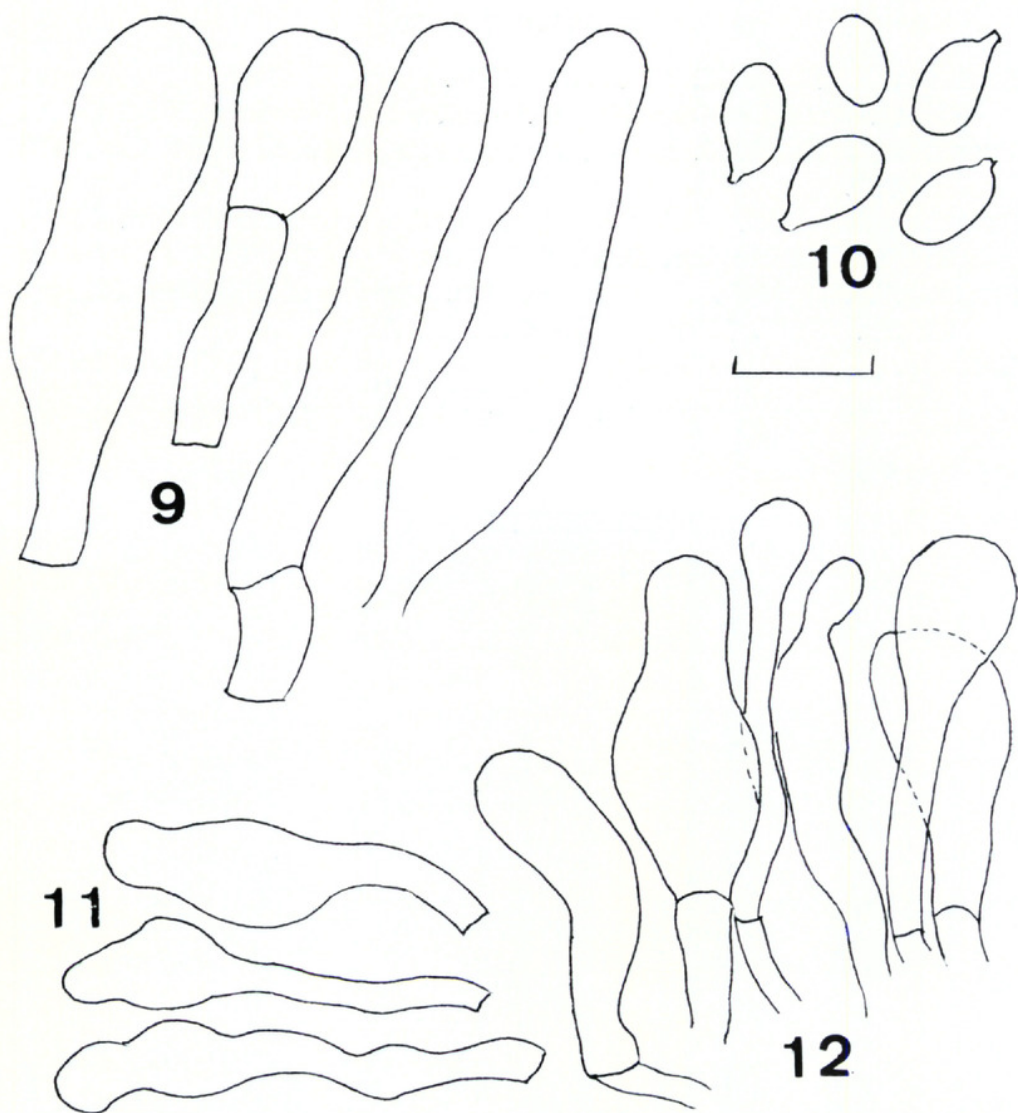


Fig. 9. *Mycena macilenta*, cheilocystidia. Figs. 10-12. *Mycena madorophila*: 10. spores, 11. pleurocystidia, 12. cheilocystidia. standard line = 10  $\mu$ m.

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