

μm thick. STIPE CORTEX of dextrinoid connective hyphae 3–7 μm broad with pale orange-yellow walls up to 1 μm thick. STIPE TRAMA of hyaline, dextrinoid hyphae up to 11 μm broad, with hyaline walls up to 0.5 μm thick. STIPE VESTURE of clavate, slightly projecting hyphal ends and rare to moderately abundant, irregularly shaped, hyaline broom cells with projections up to 20 μm long, abundant near the stipe base, rare elsewhere.

Solitary, gregarious, or cespitose on leaves in deciduous woods. July to September.

Collections examined.—INDIANA: Monroe Co., *Gilliam 938a*.—MICHIGAN: Oakland Co., *Smith 15426*; Washtenaw Co., *Smith 62486* (TYPE).

Marasmius spissus has the basidiocarp stature of *M. strictipes* (Peck) Singer and resembles this species in having a fleshy, nonstriate pileus and a thick (3–4 mm thick) stipe. Features important in defining *M. spissus* include small spores, hyaline, capitate cystidia on the lamellar faces and edges, hyaline broom cells on the lamellar edges, and stipe vesture of clavate hyphal ends and broom cells. *Marasmius spissus* is similar microscopically to a group of subtropical species centered around *M. aurantiacus* (Murrill) Singer and *M. corrugatus* (Patouillard) Sacc. & Sydow. According to Singer's (20) descriptions of these latter taxa, *M. spissus* differs from *M. aurantiacus* in having a larger, uncorrugated pileus, fewer and narrower lamellae, and hymenial leptocystidia. From *M. corrugatus* it differs in having smaller spores, a longer, broader stipe, no smooth cells in the cuticle of the pileus, more extensive stipe vesture, and hymenial leptocystidia.

8. *Marasmius armeniacus* Gilliam, sp. nov.

FIGS. 29–32

Pileus 2–6 mm latus, ex pulvinato convexus umbonatus vel planus, laevis rugulosulus vel ruguloso-striatus, tenaci-membranaceus, tenuis, velutinus vel pruinosis, armeniacus, inodorus, amarus. *Lamellae* angustae (ad 0.2 mm latae), tenues, distantes vel remotae, modice numerosae (12–14), inaequales, adnatae, membranaceae, eburneae. *Stipes* brevis (2–12 mm longus), 0.1–0.2 mm crassus, nonnihil eccentricus, filiformis, curvatus, aequalis, humidus, subnitidus, apice translucidus, fragilis, puberulus, insititius, hyalinus vel albidus demum ad basem fulvus. *Stipes steriles* numerosi, eburnei. *Sporae* 7.1–9 \times 3.1–4.4 μm , anguste vel late ellipticae vel obovatae. *Cystidia hymenii* nulla. *Echimidia hymenii* 9.8–16.8 \times 4.2–7 μm , cylindrica, tenuitunicata, cum numerosis projecturis hyalinis subtiliter et

FIGS. 24–28. *Marasmius spissus*. (*Smith 62486*). 24. Spores, \times 2,300. 25. Broom cells from lamellar edge, \times 2,300. 26. Broom cells from pileus cuticle, \times 2,300. 27. Hymenial cystidia, \times 1,500. 28. Hyphal ends and broom cells from stipe, \times 2,300.

indistincte divisis, in marginibus lamellarum. *Trama pilei* dextrinoidea. *Cuticula pilei* hymeniformis, echinidiis $2.8-14 \times 3.5-8.5 \mu\text{m}$, clavatis cylindricis vel subglobois, tenuitunicatis, cum projecturis hyalinis subtiliter et indistincte divisis. *Echinidia stipitis* abundantes, cum projecturis hyalinis $2-8 \mu\text{m}$ longis. *Pili stipitis* clavati, crassitunicati.

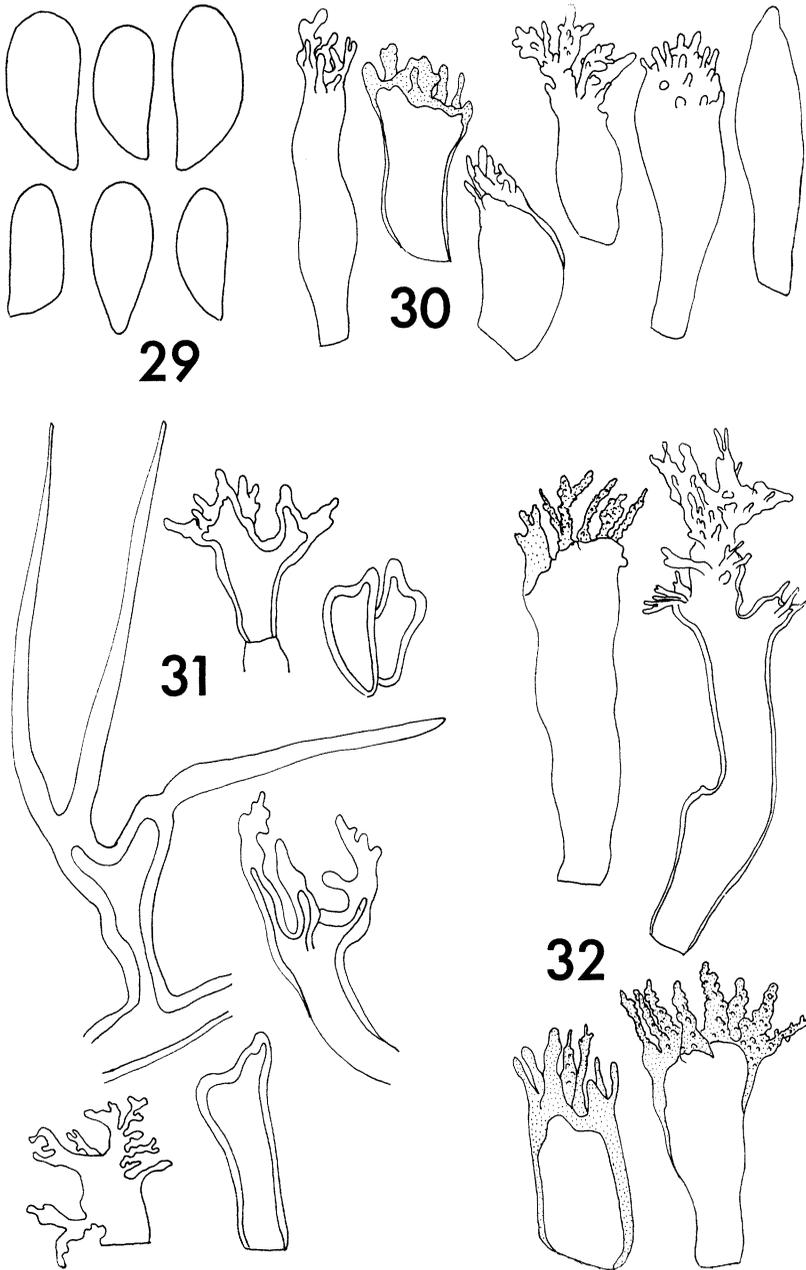
Holotypus.—INDIANA: Monroe, Co., *Gilliam 932a* (MICH).

PILEUS 2–6 mm broad, pulvinate at first, then convex, umbonate, or nearly plane, dry, dull, opaque, smooth at first, becoming minutely rugulose or rugulose-striate, not plicate or striate, entire, membranous, pliant, probably not reviving. CUTICLE minutely velutinous, sometimes whitish-pruinose, moderate orange (M&P 11B8 at first, then 11A12). TRAMA thin (not measurable). ODOR lacking. TASTE bitter, with a spermatic aftertaste.

LAMELLAE narrow (less than 0.2 mm broad), thin, distant to remote, moderately numerous (12–14 reach the stipe), unequal, with two tiers of short lamellulae which alternate with the lamellae, or in young basidiocarps sometimes equal, adnate or sometimes attached to a partial, adnate collar, membranous and fragile, entire, straight, sometimes faintly intervenose, occasionally forked in front, yellowish white (M&P 9B2).

STIPE short (2–12 mm long), 0.1–0.2 mm thick, slightly eccentric, filiform, equal, curved, moist, subshiny, opaque except at the apex, solid, fragile, soon collapsing, even, minutely pubescent overall, the hairs white, yellowish white or pale yellow, translucent and colorless overall at first, or sometimes yellowish white, later white at the apex and brownish orange (M&P 11D8) at the base, insititious. STERILE STIPES numerous, arising individually at intervals along the substrate, with tapered to acute apices, yellowish white. RHIZOMORPHS and BASAL MYCELIUM lacking.

SPORES white in mass, $7.1-9 \times 3.1-4.4 \mu\text{m}$, narrowly to broadly elliptic, fusoid-elliptic, or obovate. BASIDIA $18-20 \times 5-6 \mu\text{m}$, subclavate to clavate, 4-spored. HYMENIAL CYSTIDIA lacking. HYMENIAL BROOM CELLS $9.8-16.8 \times 4.2-7 \mu\text{m}$, narrowly to broadly cylindric, fusoid-elliptic, fusoid-ventricose, or elliptic, with apical incrustations or projections which are finely and indistinctly divided and diffuse, or occasionally with 1-several discrete, rodlike projections up to $4 \mu\text{m}$ long and thin, hyaline to pale yellow walls, dextrinoid, present only on the lamellar edges. TRAMAL HYPHAE $2-8 \mu\text{m}$ broad, interwoven to parallel, clamped, with thin, hyaline walls, dextrinoid. PILEUS CUTICLE a hymeniform layer of broom cells $2.8-14 \times 3.5-8.5 \mu\text{m}$ which are usually truncate-clavate, cylindric, or subglobose, but may be deeply 2-lobed, with indistinctly divided and branched or rarely rodlike projections up to $6 \mu\text{m}$ long and hyaline to light yellow walls up to $1 \mu\text{m}$ thick. STIPE CORTEX of dextrinoid connective hyphae $4-6 \mu\text{m}$ broad, with pale yellow walls up to $0.5 \mu\text{m}$ thick. STIPE TRAMA of hyaline, thin-walled, dextrinoid hyphae $4-6 \mu\text{m}$ broad. STIPE VESTURE abundant overall, of three cell types:



FIGS. 29-32. *Marasmius armeniacus*. (Gilliam 932a). 29. Spores, $\times 2,300$.
 30. Broom cells from lamellar edge, $\times 2,300$. 31. Broom cells from stipe, $\times 2,300$.
 32. Broom cells from pileus cuticle, $\times 2,300$.

(1) cylindrical, clavate, or irregular broom cells with numerous rodlike or rounded projections 2–8 μm long and thin, hyaline to pale yellow walls, (2) modified broom cells with 1–6 tapered, threadlike extensions up to 50 μm long and with hyaline walls up to 2 μm thick, and (3) tapered, clavate, or ovate smooth hairs with hyaline to pale yellow walls up to 2 μm thick.

On dead grass culms. August.

Collection examined.—INDIANA: Monroe Co., Gilliam 932a (TYPE).

Marasmius armeniacus, although it has an insititious stipe, is tentatively placed in section *Sicci* on the basis of its dextrinoid trama, its *siccus*-like broom cells (at least on the stipe), its absence of rhizomorphs, and its collarless lamellae. The distinctive stipe vesture, small stature, and moderate orange pileus set this species apart from other taxa in section *Sicci*. *Marasmius armeniacus* resembles *M. pruinatus* Berkeley & Curtis in having cuticular broom cells with diffuse, hyaline projections. The type specimen of *M. pruinatus* has spores 10–14 μm long, while those of *M. armeniacus* are only 7–9 μm long. The stipe of *M. pruinatus* is dark brown and glabrous, in contrast to the pale yellow, pubescent stipe of *M. armeniacus*.

9. *Marasmius spadiceus* Gilliam, sp. nov.

FIGS. 33–36

Pileus 15–30 mm latus, ex convexo planus, hygrophanus, in aetate dense translucido-striatulus, carnosulus, spadiceus vel brunneo-aurantius. *Lamellae* angustae, tenues, confertae vel spissae, numerosae, inaequales, liberae, a luteolo albidae. *Odor* mitis. *Sapor* mitis. *Stipes* 30–50 mm longus, 2–3 mm crassus, aequalis, corneus, glaber, apice pallido-aureus, base atro-brunneus. *Mycelium basale* pilis strigosus et albis. *Sporae* 6.7–10.8 \times 2.8–3.5 μm , ellipticae. *Cystidia hymenii* 22–33(–44) \times 4–8.5 μm , clavata vel fusoideo-ventricosa, rotundata, capitata vel appendiculata, hyalina. *Echinidia hymenii* 8.4–21 \times 3–6 μm , cylindrica, cum 3–8 projecturis luteolis 7–13 \times 1–2.2 μm , in marginibus lamellarum. *Trama pilei* dextrinoidea. *Cuticula pilei* hymeniformis, echinidiis 7–28 \times 4–8.5 μm , cum 2–10 projecturis brunneis 7–14 \times 1–2.2 μm . *Echinidia in apice stipitis* rara.

Holotypus.—MICHIGAN: Washtenaw Co., Smith 6591 (MICH).

PILEUS 15–30 mm broad, convex or nearly plane, hygrophanous, opaque, closely translucent-striatulate on the margin in age, somewhat fleshy. CUTICLE minutely velutinous, moderate brown (Argus Brown) to strong brown (Amber Brown) at first, fading to brownish orange (near Cinnamon-Rufous), strong brown to deep brown in dried material. TRAMA thick in the disc, thin on the margin, white. ODOR faint. TASTE mild or lacking.

LAMELLAE narrow, thin, close to crowded, numerous, unequal, with numerous lamellulae, free, but with a few lamellae touching the stipe,