NEW MARASMIOID FUNGI FROM CALIFORNIA

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ABSTRACT

Three new species of marasmioid fungi from California are described, illustrated, and compared with related taxa: Micromphale sequoiae (Section Perforantia), Micromphale arbuticola (Section Micromphale) and Marasmius applanatipes (Section Chordales).

Key Words: taxonomy, Marasmius, Micromphale, California.

Three new species of agarics have been discovered during the course of preparing a taxonomic report on the Marasmiaceae and Collybiaceae (sensu Singer, 1975) from California. Two new species of Micromphale, both possessing an alliaceous taste, grow on substrates unusual for the genus. Micromphale sequoiae, similar to M. perforans (Hofm.: Fr.) Sing., is restricted to leaves of Sequoia sempervirens (D. Don) Endl., while Micromphale arbuticola, which resembles M. foetidurn (Sow.: Fr.) Sing., is restricted to the scale bark of Arbutus menziesii Pursh. A third taxon with an alliaceous taste, herein described as Marasmius applanatipes, is similar to Marasmius epidryas Kühn., but M. epidryas lacks the alliaceous taste and grows on living Dryas species, rather than on duff of coniferous species. Other important macroscopic and microscopic differences between the new taxa and closely related ones are reported in the discussions following the descriptions.

All macroscopic descriptions are taken from characteristics of fresh material. Color terms and notations are those of Kornerup and Wanscher (1978). Microscopic descriptions are derived from features of dried material reconstituted in 95% ethanol followed by distilled water. Separate microscopic examinations were made in distilled water, Melzer’s reagent, 3% KOH, and 3% KOH plus Phloxine. Hyphal colors are given as they appear in distilled water.

Micromphale sequoiae Desjardin, sp. nov.

Figs. 1, 3–5


Pileus 6–12 mm broad, when young, convex to campanulate, often with a short, acute umbo, in age becoming broadly convex to plano-convex with or without a central papilla, occasionally plane with a shallow central depression; margin when young curved or slightly incurved, even, entire, in age becoming straight, wavy, crenate, rugulose-striate to rugulose-sulcate ⅔ of the distance to the disc; surface dry to moist, dull, glabrous, hygrophanous; at first light brown (7D4-5) overall, rarely with disc reddish brown (8E5-7), in age disc remaining light brown or fading to brownish orange (6C3-4), margin in age fading to brownish orange, greyish orange (6B2-3) or orange white (5A2), in age rarely colored buff

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overall with a slightly darker disc. Context light brown to brownish orange, soft, up to 1 mm thick. Odor mild or rarely slightly fetid when old and wet. Taste strongly alliaceous after 1–2 minutes. Lamellae adnate, free in age or rarely attached to a partial collar, close to subdistant, narrow to medium broad (up to 1

mm), rarely anastomosing or intervenose; at first pale greyish orange (6B2), fading in age to pale orange white (5-6A2), typically concolorous with the pileus margin at maturity; edges even, entire, concolorous. Lamellulae in 1–2 series. **Stipe** 20–43 mm long, 0.75–1.5 mm broad, terete or rarely apically compressed and cleft, equal or tapered downward, hollow, cartilaginous, insititious, context concolorous with stipe surface; apex pruinose, pubescent below and often with a furfuraceous base; when young, apical portion pale greyish orange (6B2), central portion light brown (7D4-6), base dark brown (7F5-7), in age apex becoming pale brownish orange (7C3), central portion becoming brown (7E4-5), base becoming dark brown (7-8F4-8), or occasionally dark brown overall in age. **Rhizomorphs** short, thin, black, poorly developed, scattered; sterile stipes rare. Basidiocarps pliant, marcescent, reviving.

**Spores** 6.5–7.5 × 3–3.7 μm, ellipsoid to lacrymoid, hyaline, smooth, inamyloid, white in deposit. Basidia 25–29 × 6–7.2 μm, clavate, hyaline, two-spored and four-spored, with sterigmata up to 4.8 μm long. **Cheilocystidia** common, 27–
33 × 4.8–6.6 μm, ventricose to cylindric with acute apices, occasionally mucronate or strangulate, hyaline and thin-walled, projecting up to 11 μm beyond the basidia. Pleurocystidia common, similar to the cheilocystidia. Caulocystidia from apex of stipe versiform, 21–48 × 6–12 μm, clavate, elongate, irregularly lobed or strangulate, smooth, with pale ochraceous walls up to 0.6 μm thick. Caulocystidia (stipe hairs) from base of stipe versiform, irregular in outline with obtuse apices, up to 110 μm long with brown, evenly pigmented walls up to 1.2 μm thick. Pileus cuticle up to 60 μm thick, composed of repent, interwoven, smooth hyphae up to 3.6 μm broad, with hyaline to ochraceous, inamyloid walls up to 0.5 μm thick, imbedded in a gelatinous matrix. Pileus trama composed of loosely interwoven, smooth, non-gelatinized hyphae 4.2–7.2 μm broad, with hyaline to pale yellowish, inamyloid walls up to 1.5 μm thick, with numerous interhyphal spaces. Lamellar trama interwoven, composed of smooth, thin-walled, hyaline, inamyloid, non-gelatinized hyphae 2.7–3.6 μm broad. Stipe cortical layer up to 60 μm thick, composed of parallel, thin-walled hyphae, wavy in outline, smooth or with scattered granular pigment incrustations, with hyaline to ochraceous, inamyloid walls. Stipe trama composed of parallel to subparallel, smooth hyphae up to 11.5 μm broad with hyaline, inamyloid walls up to 0.6 μm thick. Clamp connections present.


Micromphale sequoiae is characterized by the combination of a light brown to flesh-colored, rugulose pileus, concolorous subdistant lamellae, a mild odor, a latent garlic taste, and a greyish orange to brown pubescent stipe insititious on leaves of Sequoia. The lack of a Rameales-structure in the pileus cuticle and the presence of gelatinized cuticular hyphae, coupled with a pubescent stipe and poorly developed rhizomorphs are characters which place this taxon in Micromphale section Perforantia (sensu Singer, 1975). This new species is similar to M. perforans which has a pale pileus, a strongly fetid odor and a black, velutinous stipe that is insititious on leaves of Picea and Abies. Micromphale sequoiae differs by having a darker pileus, a mild odor and a paler and merely pubescent stipe. The type of caulocystidia at the base of the stipe provides a distinctive microscopic difference between these two taxa. In M. perforans, the stipe base is corticated by a dense layer of narrowly cylindric caulocystidia that have dark brown walls and apices that often contain a heavy concentration of pigment. In contrast, M. sequoiae has scattered, broader, and paler brown caulocystidia that lack the apical concentration of pigment. Furthermore, the substrate preference of M. sequoiae for leaves of Sequoia is an important diagnostic character. Micromphale sequoiae has never been collected on leaves of Picea or Abies (the typical substrate for M. perforans), even in habitats where the three tree genera are sympatric.

Micromphale sequoiae might be confused with Marasmius pallidocephalus Gilliam or M. androsaceus (L. :Fr.) Fr. which have been collected occasionally on Sequoia, but these latter species possess black, glabrous, bristle-like stipes, copious, long, black rhizomorphs and have epicuticular layers composed of d-verticulate, non-gelatinized hyphae. See Gilliam (1975, 1976) for complete descriptions of Marasmius pallidocephalus and M. androsaceus.

Micromphale arbuticola Desjardin, sp. nov. Figs. 2, 6–7

Pileus 4–9 mm latus, e campanulato planus cum papillis centrabilus, rugulos-su-lucatus, disco glaber vel granulosus, primo atrobrunneus, in aetate disco pallido-brunneus, margine pallidor. Odor